

SEALIST

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1

# Sequence Protocol

## (1) GENERAL INFORMATION:

### (i) APPLICANT:

- (A) NAME: Schering Aktiengesellschaft
- (B) STREET: Müllerstraße 178
- (C) CITY: Berlin
- (E) COUNTRY: Germany
- (F) POSTAL CODE (ZIP): D-13303
- (G) TELEPHONE: (030)-4681 2085
- (H) FAX: (030)-4681 2058

(ii) TITLE OF INVENTION: Human Nucleic Acid Sequences from  
Human Endothelial Cells

(iii) Number of sequences: 59

### (iv) COMPUTER READABLE FORM:

- (A) MEDIUM TYPE: Floppy disk
- (B) COMPUTER: IBM PC compatible
- (C) OPERATING SYSTEM: PC-DOS/MS-DOS
- (D) SOFTWARE: Patentin release #1.0, version #1.25  
(EPO)

## (2) INFORMATION ON SEQ ID NO. 1:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 1835 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:

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ttttacagtt ttccttttct tcagagttta ttttgaattt tcatttttgg ataaccaagc 60
agctctttta gaagaatgca cagaagagtc attctggcac ttttggatag tacataagat 120
tttctttttt ttttttaaat tttttttaat agtcacattc agctcgcttg ctcaaaccag 180
actcccatat tgggtgagca agatgagccc ataggattcc agagttaata cgtaaccgta 240
tatacaaaca gccaaaaaac cataatggtg ccacagggat ggagcagga agggcatctc 300
taacgtgtcc tctagtctat ctctgctaaa cagaaccacac gttacacatg ataactagag 360
agcacactgt gttgaaacga ggatgctgac cccaaatggc acttggcagc atgcagttta 420
aagcaaaaga gacatccttt aataactgta taaaatccag gcagttccat taaaggggtt 480
aagaaaaacca acaacaacaa aaagcgaggg actgtctgtt gtcactgtca aaaaggcact 540
tggagttaat gggaccagga ttggaggact cttagctgat acagatttca gtacgatttc 600
attaaaaggc ttggatgtta agagaggaca ctacagcggtt cctgaaggga gacgctgaga 660
tggaccgctg agaagcggaa cagatgaaca caaaggaatc aaatctttac aaccaaattg 720
catttaagcg acaacaaaaa aaggcaaac ccaaaacgca acctaaccac agcaaaatct 780
aagcaaaatc agacaacgaa gcagcgatgc atagctttcc tttgagagaa cgcatacctt 840
gagacgctac gtgccaacct aagttctcaa cgacagcttc acagtaggat tattgtgata 900
aaaatgactc aagcgatgca aaaagtttca tctgttccca gaatccgagg gagaactgag 960
gtgatcgcta gagcatagcg acatcacgtg cggtttctta atgtccctgg tggcggatac 1020
gccgagtcct cggaaggaca tctggacacc actttcagcc acctccttgc aggggcgaca 1080

```

```

tccgccaaag tcctccttta ttcogagtaa taactttaat tcctttctaa catttacacg 1140
gcaaacagga atgcagtaaa cgtccacgtc cgtcccacgg ctgggctgcc gttccgtttc 1200
ctccacgaac gggtagcgc ttccatgaga aaggatattt ggcaatttta tattccacag 1260
tcaggtgggt ctgcgatagc tcatttaatg ttaaaccgca tcaggggcct ctctcccg 1320
ttctgccagg ggcttttctt gtcttctctt tggcgagctc gtgggcagat ctctctggt 1380
gggggctggc tgctggctcc gagggggcat ccgcagtcct tctggctgct tcctcctgca 1440
ggctgggcag ctggccacca ctctctccgac tgcacccctc caacaagcat cgcagggcac 1500
tgtctcggg ggtacagacc gtggtccac attcgctacc actctgttcc acgtcatcca 1560
ggtacacgag ctgcgtgtag gccgtgctgt ctggggctcg aggetctttc tgctggtgct 1620
cttgagcggg cgggtagtgc tgctgcagag acaaagcatc tccccttccc ttccgggctg 1680
attttggttc attcatatct acgccagagt ccaactggc atcattactt ccgttccttc 1740
cagctctttg gagaatcaat gtatgaatgt ctaacctgac cgttggaact gccatccaag 1800
gagacgaacc acgcccgggg gtgcggaagc ggct

```

## (2) INFORMATION ON SEQ ID NO. 2:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 581 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 2:

```

gttctagatt gttttattca gtaattagct cttaagaccc ctggggcctg tgctacccag 60
acactaacia cagtctctat ccagttgctg gttctgggtg acgtgatctc cccatcatga 120
tcaacttact tcctgtggcc cattagggaa gtggtgacct cgggagctat ttgcctgttg 180
agtgcacaca cctggaaaca tactgctctc attttttcat ccacatcagt gagaaatgag 240
tggcccgtta gcaagatata actatgcaat catgcaacaa agctgcctaa taacatttca 300
tttattacag gactaaaagt tcattattgt ttgtaaagga tgaattcata acctctgcag 360
agttatagtt catacacagt tgatttccat ttataaaggc agaaagtcct tgttttctct 420
aaatgtcaag ctttgactga aaactcccg ttttccagtc actggagtgt gtgcgtatga 480
aagaaaatct ttagcaatta gatgggagag aagggaaata gtacttgaaa tgtaggcct 540
cacctcccca tgacatcctc catgagcctc ctgatgtagt g

```

## (2) INFORMATION ON SEQ ID NO. 3:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 516 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

(A) ORGANISM: HUMAN  
(C) ORGAN:

(vii) OTHER ORIGIN:  
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:

```

tagagatggtt ggttgatgac ccccgggatc tggagcagat gaatgaagag tctctggaag 60
tcagcccaga catgtgcatc tacatcacag aggacatgct catgtcgcgg aacctgaatg 120
gacactctgg gttgattgtg aaagaaattg ggtcttccac ctcgagctct tcagaaacag 180
ttgttaagct tcgtggccag agtactgatt ctcttccaca gactatatgt cggaaaccaa 240
agacctccac tgatcgacac agcttgagcc tcgatgacat cagactttac cagaaagact 300
tcctgcgcat tgcaggtctg tgtcaggaca ctgctcagag ttacaccttt ggatgtggcc 360
atgaactgga tgaggaaggc ctctattgca acagttgctt ggcccagcag tgcataca 420
tccaagatgc ttttccagtc aaaagaacca gcaaatactt ttctctggat ctcaactcatg 480
atgaagtcc agagtttgtt gtgtaaagtc cgtctg

```

(2)(2) INFORMATION ON SEQ ID NO. 4:

(i) SEQUENCE CHARACTERISTIC:  
(A) LENGTH: 1099 base pairs  
(B) TYPE: Nucleic acid  
(C) STRAND: individual  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual  
ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:  
(A) ORGANISM: HUMAN  
(C) ORGAN:

(vii) OTHER ORIGIN:  
(A) LIBRARY: cDNA library

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:

```

cccacaacac agggggccctg aaacacgccca gcctctcctc tgtggtcagc ttggcccagt 60
cctgctcact ggatcacagc ccattgtagg tggggcatgg tggggatcag ggcccctggc 120
ccacggggag gtagaagaag acctgggccg tgtaagggtc tgagaagggt ccctgggtcg 180
ggggtgcgtc ttggccttgc cgtgccctca tccccggct gaggcagcga cacagcaggt 240
gcaccaactc cagcaggtta agcaccaggg agatgagtcc aaccaccaac atgaagatga 300
tgaagatggg cttctccgtg gggcgagaga caaagcagtc cacgaggtag gggcagggtg 360
ctcgctggca cacaaacacg ggctccatgg tccagccgta caggcgccac tggccataga 420
ggaagcctgc ctctagcaca ctcttgca gaacactggc gacatagggt cccatcagtg 480
ctccgcggat gcgcaggcga ccattctctg ccaccgagat cttggccatc tgacgctcta 540
cgggcgccag cgcccgtctc acctgtgggt ccttggccgg cagtggccgc agctccccct 600
ccttctgccc cagccgtctt tctgcggag acaggtaa at gacatggccc aggtagacca 660
gggtgggtgt gctgacgaag aggaactgca gcaccagta gcgatgtgg gagatgggga 720
aggcctgggt atagcagacg ttggtgcagc ctggctgggc cgtgttacac tcgaaatctg 780
actgctcgtc accccacact gactcgccgg ccaggcccag gatgaggatg cggaagatga 840
agagcaccgt cagccagatc ttaccacca cggtcgagtg ctctggacc tgggtccagca 900
acttctccac gaagccccag tcacccatgg ctcccgggcc tccgtcggca aggagacaga 960
gcacgtcagt gtgtcagcat ggcattcttc tcgttcggcc agcaacaagc ctgcagggtg 1020
gtctgccacg ccggttctac cgctgcctg ccgggcggcc cagggtggag tggggacgat 1080
ggccggagtg acgcccgcg

```

## (2) INFORMATION ON SEQ ID NO. 5:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 1015 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:

```

gaggataggg agcctggggg caggagtgtg ggagacacag cgagactctg tctccaaaaa 60
aaaaagtgtt ttttgaaaat gttgaggttg aaatgatggg aaccaacatt ctttggattt 120
agtggggagc ataatagcaa acaccccctt ggctcgaca tgtacaggaa tgggaccag 180
ttggggcaca gccatggact tccccgccct ggaatgtgtg gtgcaaagtg gggccagggc 240
ccagacccaa gaggagaggg tgggccgag acaccccggg atgtcagcat ccccccacct 300
gccttctggc ggcacctccc ggggtgtgtg ttgagtcagc aggcattggg tgagagcctg 360
gtatatgtct ggaacagggt gcagggggca agcgttcctc cttcagcctt gacttgggcc 420
atgcaccccc tctcccccaa acacaaacaa gcacttctcc agtatggtgc caggacaggt 480
gtcccttcag tctctgtgtt atgacctcaa gtccctactg ggccctgcag cccagcctgt 540
gttgtaacct ctgcgtcctc aagaccacac ctggaagatt cttcttcctt ttgaaggaga 600
atcatcattg ttgctttatc acttctaaga catTTTgtac ggcacggaca agttaaacag 660
aatgtgtctc cctccctggg gtctcacacg ctcccacgag aatgccacag gggccgtgca 720
ctgggcaggc ttctctgtag aaccccaggg gcttcggccc agaccacagc gtcttgccct 780
gagcctagag caggaggtcc cgaacttctg cattcacaga ccacctccac aattgttata 840
accaaaggcc tctgtttctg ttatttctact taaatcaaca tgctattttg ttttactca 900
cttctgactt tagcctcgtg ctgagccgtg tatccatgca gtcatgttca cgtgctagtt 960
acgtttttct tcttacacat gaaaataaat gcataagtgt tagaagaaaa aaaaa

```

## (2) INFORMATION ON SEQ ID NO. 6:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 2313 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:

```

ccagagcagg cctggtggtg agcagggacg gtgcaccgga cggcgggacg gagcaaattg 60
gtctggccat ggagcacgga gggtcctacg ctcgggcggg gggcagctct cggggctgct 120
ggtattacct gcgctacttc ttctctctcg tctccctcat ccaattcctc atcatcctgg 180
ggctcgtgct cttcatggtc tatggcaacg tgcacgtgag cacagagtcc aacctgcagg 240
ccaccgagcg ccgagccgag ggcttatata gtcagctcct agggctcacg gcctcccagt 300
ccaacttgac caaggagctc aacttcacca ccgcgcgcaa ggatgccatc atgcagatgt 360
ggctgaatgc tcgccgcgac ctggaccgca tcaatgccag cttccgccag tgccagggtg 420
accgggtcat ctacacgaac aatcagaggt acatggctgc catcatcttg agtgagaagc 480
aatgcagaga tcaattcaag gacatgaaca agagctgcga tgccttgctc ttcagtctga 540
atcagaaggt gaagacgctg gaggtggaga tagccaagga gaagaccatt tgcactaagg 600
ataaggaaaag cgtgctgctg aacaaacgcg tggcggagga acagctggtt gaatgcgtga 660
aaacccggga gctgcagcac caagagcgcc actggccaag gagcaactgc aaaaggtgca 720
agccctctgc ctgcccctgg acaaggacaa gtttgagatg gaccttcgta acctgtggag 780
ggactccatt atcccacgca gcctggacaa cctgggttac aacctctacc atcccctggg 840
ctcgggaattg gcctccatcc gcagagcctg cgaccacatg cccagcctca tgagctccaa 900
ggtggaggag ctggcccggg gcctccgggc ggatatcgaa cgcgtggccc gcgagaactc 960
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acagaaggtg gagaaggagg ctcaggcccg ggaggccaag ctccaagctg aatgctcccg 1080
gcagaccag ctagcgtgg aggagaaggc ggtgctgcgg aaggaacgag acaacctggc 1140
caaggagctg gaagagaaga agagggaggc ggagcagctc aggatggagc tggccatcag 1200
aaactcagcc ctggacacct gcatcaagac caagtcgcag ccgatgatgc cagtgtcaag 1260
gccccatggc cctgtcccca acccccagcc catcgacca gctagcctgg aggagttaa 1320
gaggaagatc ctggagtccc agaggccccc tgcaggcatc cctgtagccc catccagtgg 1380
ctgaggaggc tccaggcctg aggaccaagg gatggcccga ctcggcggtt tgcggaggat 1440
gcagggatat gctcacagcg cccgacacaa cccctctccc cgcgcccaa ccacccaggg 1500
ccaccatcag acaactccct gcatgcaaac ccctagtacc ctctcacacc cgcaccgcg 1560
cctcacgata cctcaccag agcacacgac cgcgagatg acgtcacgca agcaacggcg 1620
ctgacgtcac atatcacctg ggtgatggcg tcacgtggcc atgtagacgt cacgaagaga 1680
tatagcgatg gcgtcgtgca gatgcagcac gtcgcacaca gacatgggga acttggcatg 1740

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tcacacagac gcggcgatgg catcacacag acggtgatga tgtcacacac agacacagtg 1860
acaacacaca ccatgacaac gacacctata gatatggcac caacatcaca tgcacgcatg 1920
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acacgggcca aggtacccac aggatcccat cccctcccgc acagccctgg gccccagcac 2040
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gaggtgagaa caggaagcca ttcacctccg ctccctgagc gtgagtgttt ccaggacccc 2160
ctcggggccc tgagccgggg gtgagggtca cctgttgctg ggaggggagc cactccttct 2220
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agtaaactct taaaaaaaaa aaaaaaaaaa aaa

```

## (2) INFORMATION ON SEQ ID NO. 7:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 389 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 7:

```

gccaaaaaga tggcttcaaa agtaagaatg aaacatttga tccattcagc tttaggctat 60
gccactggat tcatgtctag aaaagatagg ataatttctg taaagaaatg aagaccttgc 120
tattctaaaa tcagatccct acagatccag atttcaggaa acaaatacat aggggactaa 180
ctttccttgt tcagattagt ttttctcctt tgcaccagc tatataatat gaggaagtat 240
tgacttttta aaagtgtttt agttttccat ttctttgata tgaaaagtaa tatttcggga 300
gaaccctgag ctattaataa tctatgtggc tagtgcgtat atattggtct gaatttggtc 360
tccttttgtg gtgtccagtg ggtaacatc

```

## (2) INFORMATION ON SEQ ID NO. 8:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 157 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:



(vii) OTHER ORIGIN:  
 (A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 8:

```
tgctttaaac agctgtgtca aaaactgaca tcagagagta aattgaattt ggtttttag 60
gaagcaggaa gcaagcccac tcaaactgtga aatttggcat gagggatcca gtaactttct 120
cctcaatctg tgaactatat gtgagtttga tattttg
```

(2) INFORMATION ON SEQ ID NO. 9:

(i) SEQUENCE CHARACTERISTIC:  
 (A) LENGTH: 561 base pairs  
 (B) TYPE: Nucleic acid  
 (C) STRAND: individual  
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual  
 ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:  
 (A) ORGANISM: HUMAN  
 (C) ORGAN:

(vii) OTHER ORIGIN:  
 (A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 9:

```
aatagtcaaa acataaacia aagctaatta actggcactg ttgtcacctg agactaagtg 60
gatgttggtg gctgacatac aggctcagcc agcagagaaa gaattctgaa ttccccttgc 120
tgaactgaac tattctgtta catatgggtg acaaactctg gtgttatctt ttttctacct 180
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accatattta aatttatgag tatcaaccga ggacatagtc aaaccttcga tgatgaacat 240
tcttgatttt ttgcctgatt aatctctgtt gagctctact tgtggtcatt caagatttta 300
tgatgttgaa aggaaaagtg aatatgacct ttaaaaattg tattttgggt gatgatagtc 360
tcaccactat aaaactgtca attattgcct aatgtttaaag atatccatca ttgtgattaa 420
ttaaacctat aatgagtatt cttaatggag aattcttaat ggatggatta tcccctgata 480
ttttctttta aatttctctg cacacacagg acttctcatt ttccaataaa tgggtgtact 540
ctgccccaat ttctaggaaa a
```

(2) INFORMATION ON SEQ ID NO. 10:

(i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 1508 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

(vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 10:

```

cacaaacacg agagactcca cggctctgcct gagcaccgcc agcctcctag gctccagcac 60

tcgcaggtec attcttctgc acgagcctct ctgtccagat ccataagcac ggtcagctca 120
gggtcgcgga gcagtacgag gacaagtacc agcagcagct cctctgaaca gagactgcta 180
ggatcatcct tctcctccgg gctgttgcct gatggcataa tccgggtgca acccaaactc 240
gagctcaagc cagggtgagct taagccactg agcaaggaag atttgggcct gcacgcctac 300
aggtgtgagg actgtggcaa gtgcaaatgt aaggagtgca cctacccaag gcctctgcca 360
tcagactgga tctgcgacaa gcagtgcctt tgctcggccc agaactgatg tgactatggg 420
acttgtgtat gctgtgtgaa aggtctcttc tatcactggt ctaatgatga tgaggacaac 480
tgtgtctgaca acccatgttc ttgcagccag tctcactggt gtacacgatg gtcagccatg 540
gggtgtcatgt ccctcttttt gccttgttta tgggtgttacc ttccagccaa gggttgcctt 600
aaattgtgcc aggggtgtta tgaccggggt aacaggcctg gttgccgctg taaaaactca 660
aacacagttt gctgcaaagt tcccactgtc ccccctagga actttgaaaa accaacatag 720
catcattaat caggaatatt acagtaatga ggattttttc tttctttttt taatacacat 780
atgcaaccaa ctaaacagtt ataatcttgg cactgttaat agaaagttag gatagtcttt 840
gctgtttgct gtgaaatgct ttttgtccat gtgccgtttt aactgatatg cttgttagaa 900
ctcagctaata ggagctcaaa gtatgagata cagaacttgg tgacccatgt attgcataag 960
ctaaagcaac acagacactc ctaggcaaaag tttttgtttg tgaatagtac ttgcaaaact 1020
tgtaaattag cagatgactt ttttccattg ttttctccag agagaatgtg ctatattttt 1080
gtatatacaa taatatttgc aactgtgaaa aacaagtggg gccatactac atggcacaga 1140
cacaaaatat tatactaata tgttgtaaat tcggaagaat gtgaatcaat cagtatgttt 1200
ttagattgta ttttgcccta cagaaagcct ttattgtaag actctgattt ccctttggac 1260
ttcatgtata ttgtacagtt acagtaaaat tcaaccttta ttttctaatt ttttcaacat 1320
attgttttagt gtaaagaata tttatttgaa gttttattat tttataaaaa agaataattta 1380
ttttaagagg catcttataa attttgcccc ttttatgagg atgtgatagt tgctgcaaat 1440
gaggggttac agatgcatat gtccaatata aaatagaaaa tatattaacg tttgaaatta 1500
aaaaaaaa

```

## (2) INFORMATION ON SEQ ID NO. 11:

- (i) SEQUENCE CHARACTERISTIC:
  - (A) LENGTH: 389 base pairs
  - (B) TYPE: Nucleic acid
  - (C) STRAND: individual
  - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing
- (iii) HYPOTHETICAL: NO
- (iii) ANTI-SENSE: NO
- (vi) ORIGIN:
  - (A) ORGANISM: HUMAN
  - (C) ORGAN:
- (vii) OTHER ORIGIN:
  - (A) LIBRARY: cDNA library
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 11:

```

gggcaggtga tcagggcaca cattccccgt ccattgagac agtagcattc ccggcaccca 60
tcgtgccagc tctcctcatt tttatgatga tgaccatcca cggtgagaca agtgcccgcac 120
aggatgggtg gccagctga agcacaggcc gctctgcact tgcagataag acagccgtga 180
ctgtcctgct ggaaacccaa ggggcagatc ttactgcatg agagctctgg acatttctta 240
cagcgacaga tgtcacagcc gtgcttattc ttcagcaatc caagtggaca atacttgtca 300
cagattatgg gtctgcactt cttgggcctt gggcggcact cacagatctc acagtttttg 360
acctcgcccg cgaccacgt gggtaccga

```

## (2) INFORMATION ON SEQ ID NO. 12:

- (i) SEQUENCE CHARACTERISTIC:
  - (A) LENGTH: 981 base pairs
  - (B) TYPE: Nucleic acid
  - (C) STRAND: individual
  - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing
- (iii) HYPOTHETICAL: NO
- (iii) ANTI-SENSE: NO
- (vi) ORIGIN:
  - (A) ORGANISM: HUMAN
  - (C) ORGAN:

- (vii) OTHER ORIGIN:  
 (A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 12:

```

tttttttttt ttggattgca aaaattttatt aaaattggag acactgtttt aatctttcttg 60
tgccatgaga ctccatcagg cagtctacaa agaccactgg gaggctgagg atcacttgag 120
cccagaagtt tgaggctgta gtaagcttca aaggccactg cactctagct tgggtgaggc 180
aagacccttt caagcagtaa gctgcatgct tgcttggtgt ggtcattaaa aaccctagtt 240
taggataaca acatattaat cagggcacaa tacaaatgtg tgatgcttgt tagtagagta 300
acctcagaat caaaatggaa cggtttttaca gtgatatcat tatatttcat ttggcagaat 360
cattacatca ttggttacac tgaaaatcat cacatgtacc aaaagctgac tcacctagtt 420
taggataaca ggtctgcctg tttgaagatg aaaaataata cccattttaa atttgcccta 480
ctcaatttcc ttctcagtca cattttaact tttaaacagc taatcactcc catctacaga 540
ttaaggtgta tatgccacca aaaccttttg ccaccttaaa aatttccttc aaagttttaa 600
ctaatgcctg catttcttca atcatgaatt ctgagtcctt tgcttcttta aaacttgctc 660
cacacagtgt agtcaagccg actctccata cccaagcaag tcatccatgg ataaaaacgt 720
taccaggagc agaaccatta agctgggtcca ggcaagttgg actccaccat ttcaacttcc 780
agctttctgt ctaatgcctg tgtgccaatg gcttgagtta ggcttgctct ttaggacttc 840
agtagctatt ctcatccttc cttggggaca caactgtcca taaggtgcta tccagagcca 900
cactgcatct gcaccagca ccatacctca caggagtcga ctcccacgag ccgcctgtat 960
ataagagttc ttttgatgac g

```

(2) INFORMATION ON SEQ ID NO. 13:

- (i) SEQUENCE CHARACTERISTIC:  
 (A) LENGTH: 401 base pairs  
 (B) TYPE: Nucleic acid  
 (C) STRAND: individual  
 (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: Partial cDNAs produced from individual  
 ESTs by assembling and editing
- (iii) HYPOTHETICAL: NO
- (iii) ANTI-SENSE: NO
- (vi) ORIGIN:  
 (A) ORGANISM: HUMAN  
 (C) ORGAN:
- (vii) OTHER ORIGIN:  
 (A) LIBRARY: cDNA library

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 13:

```

ataactacag cttcagcaga caactaaaga gactgcatta aggtgatttc tctggctata 60
aagagagccc ggccgcagag catgtgactg ctgggacctc tgggataggc aacactgccc 120
tctctccccc agagcgaccc cccgggcagg tcggggccca aggaatgacc cagcaactgc 180
tccctaccca gcacactctc tttactgcc actgcaatta tgctgtgaag atgactgggt 240
gtgggtcatca cgattcagag aaatcaagat ctatgaccat tttaggcaaa gagagaaact 300
tggagaattg ctgaggacta ctgaacctg ttttgctttt ttaaaaaata ctaaactctc 360
acttcagcat atttagttgt cattaaaatt aagctgata t

```

## (2) INFORMATION ON SEQ ID NO. 14:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 1002 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 14:

```

gacaatataa aaagtggaaa caagcataaa ttgcagacat aaaataatct tctggtagaa 60
acagttgtgg agaacagggt gagtagagca acaacaacaa aagcttatgc agtcaccttc 120
tttgaaaatg ttaaatataa gtcctattct ctttgtccag ctgggttttag ctgagggtag 180
ccaattactt ctcttaagggt ccatggcatt cgccaggatt ctataaaagc caagttaact 240
gaagtaaata tctggggccc atcgaccccc cactaagtac tttgtcacca tgttgatatct 300
taaaagtcac ttttactgt ttgactcaga atttgggact tcagagtcaa acttcattgc 360
ttactccaaa cccagtttaa ttccccactt ttttaagtag gcttagcttt gagtgatttt 420
tggtataaac cgaaatgtaa atccaccttc aaacaacaaa gtttgacaag actgaaatgt 480
tactgaaaac aatggtgcca tatgtcccaa agacatttcc ccaagataac tgccaaagag 540
tttttgagga ggacaatgat catttattat gtaggagcct tgatatctct gcaaaataga 600
attaatacag ctcaaattga gtagtaacca agcttttctg cccaggaagt aacaaacatc 660
actacgaaca tgagagtaca agaggaaact ttcataatgc attttttcat tcatacatc 720
attcaataaa cattagccaa gctaattgtc caagccactg tgccaggat taacaatata 780
acaacaataa aagacacagt ccttcctctc aagggtgttc gtctagtagg gaagatgatt 840
attcattaaa atttttggtg catcagaatc atgaggagct tgtcaaaaat gtaaattcct 900
gcctatgttc tcagatatc tggttaggctc aggagtggga acccaaaatc aattccttta 960
acaaacacta aaggtgattc taacacaggc ggtgtgagga cc

```

## (2) INFORMATION ON SEQ ID NO. 15:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 280 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 15:

```
cgaggtgggc caccggtgtc tggctcgaga tttttaaatg aggattacat taccctatatt 60
ataatattcc tattctaatac tattgtattc ttacaattaa atgtatcaaa taattcttaa 120
aaacattatt agaaacaaac tgcctaatac cttataagac taaaaaaatc accaagatga 180
aactgtatta tgactctcaa tatttaaaca tttaaaaaaa tgtagtggtt tgtaagcac 240
caatcttaac tatttcacct gcccgggcgg ccgctcgagg
```

## (2) INFORMATION ON SEQ ID NO. 16:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 2041 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

## (A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 16:

```

ccccccgcag aactcccccc tggaatagga tttttaaaac ccttgacaat tagaaatcct 60
atagagggtta gcattttttta ggtaaaaaata tggttgcccc tacagggatc atgcaacttc 120
cttaaaacca attcagcaca tatgtataaa gaaccctttt taaaaacatt tgtacttgaa 180
atacagacac agtgatgctg aagacactaa acaaaaactg aaaagtacta taccttgata 240
aattttggtta ttgccttctt tagagacttt ataatctcta gttgattttc aaggacttga 300
atttaataat ggggtaatta cacaagacgt aaaggatttt ttaaaaacaa gtattttttt 360
ttacctctag catcaattct tttataaaga atgctaaata aattacattt tttgttcagt 420
aaaactgaag atagaccatt taaatgcttc taccaaaatt aacgcagctt aattagggac 480
caggtagcata ttttcttctg aacatttttg gtcaagcatg tctaaccata aaagcaaatg 540
gaattttaag aggtagattt ttttcccatg atgcattttg ttaataaatg tgtcaagaaa 600
ataaaaacaa gcactgagtg tgttctcttg aagtataagg gtctaataaa aaataaaaga 660
tagatatttg ttatagtctg acatttttaac agtcatagta ttagacgttt cgtgaccagt 720
gcattttgga ctctctcagg atcaaaatac gagtctgcca actgtattaa atcctcctcc 780
accccccca ccagttgggtc cacagcttcc tgggtgggtcg ttgtcatcaa atccattggg 840
ccgaaatgaa catgaagcag atgcagcttg gagggcccg gctcgagcat tcaactcttg 900
ttcctgtaaa tatagtttat tgtcttttgt tatagcatcc ataagttctt tctgtagagg 960
tgggtctcca tttatccaga gtccactggt tgggttatta ccacttaaac cattagtact 1020
atgctgtttt ttatacaaaa gcacataagc tgtgtccttt ggaaacctgc tcgtaatttt 1080
ctggactgac tgaaatgaag taaatgtcac tctactgtca ttaataaaaa acccattctt 1140
ttgacatttc cttattttcc aaatcctggt caaaaactgc actgggacta tctctcccta 1200
gtaaatgact ctgggaggat gctaattgcca gagcctcaga ctgggtggtac atctgatatg 1260
aagagtctgt acttgtgata tttctggcat aagaatagta atgccactt tcagaggata 1320
taccagagtg aaccacaacg gaacttaata gatagggcac caattttgtg cagggaagctt 1380
catcagtccc tgaaggcttt aattttttag caaggttctc actaagatca gtgaagtcaa 1440
catctacaga ccaactttct gacaatgaag agaaagaagt aattcttcta actggcaact 1500
ccaaaaccag tggccagtga tacattgtct aaaattttcc ttctcacatg atacttctga 1560
tcatatgaaa atctcaggag agtaagaata aggtattcag gttcctccgt gatttgcata 1620
gttttctcag cattttgcag agaggcacag ttttcacaat aatattggtt atcaccagta 1680
agaatctctg gagcccaaaa aataatttag taagtcagtt actgaagggt tggtttcacc 1740

tcccggtttc tgagggtacat ctttattaac aagaatcttg ttagattcgt tagggacaga 1800
agtgttttca gaacagtaaa actcattagg aggactgcct atgggttttt cattcacaag 1860
tgagtccacag atgaaggcag ctggtgttgg attataaact actggctctt ctgaaggacc 1920
gggtacagac gcttgcatga gaccaccatc ttgtatactg ggtgatgatg ctggatcttg 1980
gacagacatg ttttccaaag aagagggaagc acaaaacgca agcgaaagat ctgtaaaaggc 2040
t

```

## (2) INFORMATION ON SEQ ID NO. 17:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 235 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 17:

```
cgccccgggc aggtgtcagg ggttccaaac cagcctgggg aaacacagcg tagaccctc 60
acctctacaa ataaaaaatt aaaaaattag ccaggtgtgg cagcgaacaa ctgtagtctc 120
agatactcag gagactgagc tggaaaggat cacttgagcc caagaagttc aaggttacag 180
tgggccacga tcatgtcatt acactccagc ttgggtgaca aaatgagact gtcta
```

## (2) INFORMATION ON SEQ ID NO. 18:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 2732 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library



## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 18:

```

gtgtggagtt tcagctgcta ttgactataa gagctatgga acagaaaaag cttgctggct 60
tcatgttgat aactacttta tatggagctt cattggacct gttaccttca ttattctgct 120
aaatattatc ttcttgggtg tcacattgtg caaaatggtg aagcattcaa acactttgaa 180
accagattct agcaggttgg aaaacattaa gtcttgggtg cttggcgctt tcgctcttct 240
gtgtcttctt ggcttcacct ggtcctttgg gttgcttttt attaatgagg agactattgt 300
gatggcatat ctcttcacta tatttaatgc ttccaggga gtgttcattt tcactcttca 360

ctgtgctctc caaaagaaaag tacgaaaaga atatggcaag tgcttcagac actcatactg 420
ctgtggaggc ctcccaactg agagtcccca cagttcagtg aaggcatcaa ccaccagaac 480
cagtgtcgcg tattcctctg gcacacagag tcgtataaga agaattgtga atgatactgt 540
gagaaaacaa tcagaatctt cttttatctc aggtgacatc aatagcactt caacacttaa 600
tcaagggtggc ataaatctta atatattatt acaggactga catcacatgg tctgagagcc 660
catcttcaag atttatatca tttagaggac attcactgaa caatgccagg gatacaagt 720
ccatggatac tctaccgcta aatggtaatt ttaacaacag ctactcgctg cacaagggtg 780
actataatga cagcgtgcaa gttgtggact gtggactaag tctgaatgat actgcttttg 840
agaaaaatga catttcagaa tiagtgcaca acaacttacg gggcagcagc aagactcaca 900
acctcgagct ccagctacca gtcaaacctg tgattggagg tagcagcagt gaagatgatg 960
ctattgtggc agatgcttca tctttaatgc acagcgacaa cccagggtg gagctccatc 1020
acaaagaact cgaggcacca cttattcctc agcggactca ctcccttctg taccaacccc 1080
agaagaaagt gaagtccgag ggaactgaca gctatgtctc ccaactgaca gcagagggtg 1140
aagatcacct acagtccccc aacagagact ctctttatac aagcatgccc aatcttagag 1200
actctcccta tccggagagc agccctgaca tggaagaaga cctctctccc tccaggagga 1260
gtgagaatga ggacatttac tataaaagca tgccaaatct tggagctggc catcagcttc 1320
agatgtgcta ccagtcagc aggggcaata gtgatggtta tataatcccc attaacaaag 1380
aagggtgtat tccagaagga gatgttagag aaggacaaat gcagctggtt acaagtcttt 1440
aatcatacag ctaaggaatt ccaagggcca catgcgagta ttaataaata aagacaccat 1500
tggcctgacg cagctccctc aaactctgct tgaagagatg actcttgacc tgtggttctc 1560
tggtgtaaaa aagatgactg aaccttgtag ttctgtgaat ttttataaaa catacaaaaa 1620
ctttgtatat acacagagta tactaaagtg aattatttgt taaaaagaaa agagatgcca 1680
gccagggtatt ttaagattct gctgctgttt agagaaattg tgaaaacaagc aaaacaaaac 1740
tttccagcca ttttactgca gcagtctgtg aactaaattt gtaaatatgg ctgcaccatt 1800
tttgtaggcc tgcatgttat tatatacaag acgtaggctt taaaatcctg tgggacaaat 1860
ttactgtacc ttactattcc tgacaagact tggaaaagca ggagagatat tctgcatcag 1920
tttgcagttc actgcaaata ttttacatta aggc aaagat tgaaaacatg cttaaccact 1980
agcaatcaag ccacaggcct tatttcatat gtttccctca ctgtacaatg aactattctc 2040
atgaaaaatg gctaaagaaa ttatatattt ttctatttgt agggtaaaat aaatacattt 2100
gtgtccaact gaaatataat tgtcattaaa ataattttta agagtgaaga aaatatttgt 2160
aaaagctctt ggttgacat gttatgaaat gtttttctt acactttgtc atggtaagtt 2220
ctactcattt tcacttcttt tccactgtat acagtgttct gctttgacaa agttagtctt 2280
tattacttac atttaaattt cttattgcca aaagaacgtg ttttatgggg agaaacaaac 2340
tctttgaagc cagttatgtc atgccttgca caaaagtgat gaaatctaga aaagatttgt 2400
tgtcaccctt gtttattctt gaacagaggg caaagagggc actgggcact tctcaciaac 2460
tttctagtga acaaaagggt cctattcttt tttaaaaaaa taaaataaaa cataaatatt 2520
actcttccat attccttctg cctatatatta gtaatttaatt tattttatga taaagttcta 2580
atgaaatgta aattgtttca gcaaaattct gctttttttt catccctttg tgtaaacctg 2640
ttaataatga gccatcact aatatccagt gtaaagttta acacggtttg acagtaataa 2700
aatgtgaatt ttttcaagtt aaaaaaaaaa aa

```

## (2) INFORMATION ON SEQ ID NO. 19:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 276 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 19:

```
ctccctaaat gatttttaaaa taaattggat aaacatatga tataaagtgg gtactttaga 60
aaccgccttt gcatatTTTTt tatgtacaaa tctttgtata caattccgat gttccttata 120
tattccctat atagcaaacc aaaaccagga cctcccaact gcatgcctca agtccctgtg 180
gagcactctg gcaactggat ggccttactt gctttctgac aaaatagctg gaaaggagga 240
gggaccaatt aaatacctcg gccgcgacca cgctgg
```

## (2) INFORMATION ON SEQ ID NO. 20:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 2361 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

## (A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 20:

```

attgtaccag ccttgatgaa cgtgggccct gcttcgcttt tgagggccat aagctcattg 60
cccactgggt tagaggctac cttatcattg tctcccgtga ccggaagggt tctcccaagt 120
cagagtttac cagcagggat tcacagagct ccgacaagca gattctaaac atctatgacc 180
tgtgcaacaa gttcatagcc tatagcaccg tctttgagga tgtagtggtg gtgcttgctg 240
agtggggctc cctgtacgtg ctgacgcggg atgggcgggt ccacgcactg caggagaagg 300
acacacagac caaactggag atgctgttta agaagaacct atttgagatg gcgattaacc 360
ttgccaaagag ccagcatctg gacagtgatg ggctggccca gattttcatg cagtattggag 420
accatctcta cagcaagggc aaccacgatg gggctgtcca gcaatatatc cgaaccattg 480
gaaagtggga gccatcctac gtgatccgca agtttctgga tgcccagcgc attcacaacc 540
tgactgccta cctgcagacc ctgcaccgac aatccctggc caatgccgac cataccaccc 600
tgctcctcaa ctgctatacc aagctcaagg acagctcgaa gctggaggag ttcatacaga 660
aaaagagtga gagtgaagtc cactttgatg tggagacagc catcaaggtc ctccggcagg 720
ctggctacta ctcccatgcc ctgtatctgg cggagaacca tgcacatcat gagtgggtacc 780
tgaagatcca gctagaagac attaagaatt atcaggaagc ctttcgatac atcggcaagc 840
tgccttttga gcaggcagag agcaacatga agcgtacgg caagatcctc atgcaccaca 900
taccagagca gacaactcag ttgctgaagg gactttgrac tgattatcgg cccagcctcg 960
aaggccgcag cgatagggag gccccaggct gcagggccaa ctctgaggag ttcataccca 1020
tctttgccaa taaccgcgca gagctgaaag ccttcctaga gcacatgagt gaagtgcagc 1080
cagactcacc ccaggggatc tacgacacac tccttgagct gcgactgcag aactgggccc 1140
acgagaagga tccacaggtc aaagagaagc ttcacgcaga ggccatttcc ctgctgaaga 1200
gtggctcgct ctgcgacgtc tttgacaagg ccttggctct gtgccagatg cagcacttcc 1260
aggatgggtg cctttacctt tatgagcagg ggaagctgtt ccagcagatc atgcactacc 1320
acatgcagca cgagcagtac cggcaggtca tcagcgtgtg tgagcgccat ggggagcagg 1380
acccctcctt gtgggagcag gccctcagct acttcgctcg caaggaggag gactgcaagg 1440
agtatgtggc agctgtcctc aagcatatcg agaacaagaa cctcatgcca cctcttctag 1500
tggtgcagac cctggcccac aactccacag ccacactctc cgtcatcagg gactacctgg 1560
tccaaaaact acagaaacag agccagcaga ttgcacagga tgagctgcgg gtgcggcggt 1620
accgagagga gaccacccgt atccgccagg agatccaaga gctcaaggcc agtcctaaga 1680
ttttccaaaa gaccaagtgc agcatctgta acagtgcctt ggagttgccc tcagtcact 1740

tcctgtgtgg ccaactcctc caccaacact gctttgagag ttactcggaa agtgatgctg 1800
actgccccac ctgcctccct gaaaaccgga aggtcatgga tatgatccgg gccaggaac 1860
agaaacgaga tctccatgat caattccagc atcagctcaa gtgctccaat gacagctttt 1920
ctgtgattgc tgactacttt ggcagagggt ttttcaacaa attgactctg ctgaccgacc 1980
ctccacagc cagactgacc tccagcctgg aggctgggct gcaacgcgac ctactcatgc 2040
actccaggag gggcacttaa gcagcctgga ggaagatgtg ggcaacagtg gaggaccaag 2100
agaacagaca caatgggacc tgggcgggcg ttacacagaa ggctggctga catgccagg 2160
gtccactct catctaattg cacagccctc acaagactaa agcggaaact tttcttttcc 2220
ctggccttcc ttaattttta gtcaagcttg gcaatccctt cctctttaac taggcagggt 2280
ttagaatcat ttccagatta atggggggga aggggaacct caggcaaacc tcctgaagtt 2340
ttggaaaaaa aagctgggtt c

```

## (2) INFORMATION ON SEQ ID NO. 21:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 179 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 21:

```
aggtgttaga tgctcttgaa aaagaaactg catctaagct gtcagaaatg gattctttta 60
acaatcaact aaaggaactg agagaaacct acaacacaca gcagttagcc cttgaacagc 120
tttataagat caacgtgaca agttgaagga aattgaaagg aaaaaattag aactaatgc
```

## (2) INFORMATION ON SEQ ID NO. 22:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 905 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 22:

```

tttttttttt tttttaacc gtgtggtctt ttttcagtg ccagtgttac agatacaaca 60

caaatgttcc agttagaagg aattcaaacg gaatgccaaag gtccaagcca ggctcaagaa 120
ataaaaaggg aggtttggag taatagataa gatgactcca atactcactc ttcctaaggg 180
caaagggtact tttgatacag agtctgatct ttgaaactgg tgaactcctc ttccacccat 240
taccatagtt caaacaggca agttatgggc ttaggagcac tttaaaattht gtggtgggaa 300
taggggtcatt aataactatg aatatactct ttagaagggtg accattttgc actttaaaagg 360
gaatcaattht tgaaaatcat ggagactatt catgactaca gctaaagaat ggcgagaaaag 420
gggagctgga agagccttgg aagtttctat tacaaataga gcaccatatt cttcatgcca 480
aatctcaaca aaagctcttht ttaactccat ctgtccagtg tttaaaata aactcgcaag 540
gtctgaccag ttcttggtta caaacatata tgtgtgtgtc tgtgtgtata cagcaatgca 600
cagaaaaggc taccaggagc ctaatgcctc tttaaaacat tgggggaacc agtagaaaaa 660
ggcagggctc cctaattgtc attattacat ttccattccg aatgccagat gttaaaagt 720
cctgaagatg gtaaccagc tagtgaggaa taaatacccc accttgcca gtccacagag 780
aaacaacagt agaaagaagg ggcaactctt tgctgcagag acaaagttag tgttttttcg 840
ccatggattg cagtcctctc ctccagacca gctgcttatt tcctcagggg cccagggaat 900
gttga

```

## (2) INFORMATION ON SEQ ID NO. 23:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 213 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 23:

```

gggtctcttct ttcctttttt tttttccaaa agtggttcttt tattttctagt aacatatatt 60
gtataaatac tctattttat atgcacttcc acaaaagcga tataatttaa aagttttttt 120
cattagaaat aaatgtataa aaataaatat gttattatag gcattttatta ctaactatag 180
tccttcttgg aaggaacacc caaaccaata cttataaagt acatgtaatt tatagtaaca 240
tattttacta tatacatatg gaaaaaatca tattctcaca gaagagctga acagacattc 300
accaggatag gactgttggg ccagctgctg gagatggacc tgctaccctt cagcagcctc 360
cccaccacaa gacaagtgat ctcaatgtcc ccaaacctgt gggaccctgt tctacacacc 420
tcattttttg tccggcgttt catcctcctt gtgtgattgt actgattttc atgagacaca 480
agttacttct ttacatccat attcccaaag cagggttaca tggtaggaaa gaaaggaagt 540
tggaggtact aagctcattg tgtctctctt agctttttacc agcatctaatt gcttctactgc 600
tttttttcca ttgtagactt taatgcactt gaataaatac atggagttgt tttttcctca 660
aaatgaatta cacaataaaa gactgagatg gtccaaaaaa ggaaagagga agccatttgc 720
gttattttcac gttgctgagc ctttctctca tgttgaacaa tctgaagttt taattctcgg 780
tagaaataat gtataaacat tctctgaaac catagcagcc ataaacagtg ctggtcaaaag 840
atcctatttg tactcctttt tccccccatt gttagtggag taaagtaaaa caggtcttag 900
taaaaatcca cttttctcct acttttcatt tcccaacccc catgatacta agtattttgat 960
aagtaccagg aaacaggggt tgtaatagtt ctaacttttt ttgacaattg ctttgttttt 1020
tctaaacttg taatagatgt aacaaaagaa ataataataa taatgcccgg ggctttatta 1080
tgctatatca ctgctcagag gttaataatc ctcaactaact atcctatcaa atttgcaact 1140
ggcagtttac tctgatgatt caactccttt tctatctacc ccataaatcc caccttactg 1200
atacacctca ctggttactg gcaagatacg ctggatccct ccagccttct tgctttccct 1260
gcaccagccc ttctcactt tgcttggccc tcaaagctaa caccacttaa accacttaac 1320
tgcattctgc cattgtgcaa aagtctatga aatgtttagg tttctttaaa ggatcacagc 1380
tctcatgaga taacacccct ccatcatggg acagacactt caagcttctt tttttgtaac 1440
ccttcccaca ggtcttagaa catgatgacc actccccag ctgccactgg gggcagggat 1500
gggtctgcaca aggtctgggt ctggctggct tcacttctt tgccactcgg gaagcaggct 1560
gtccattaat gtctcggcat tctaccagtc ttctctgcca acccaattca catgacttag 1620
aacattcgcc ccaactcttca atgacccatg ctgaaaaagt ggggatagca ttgaaagatt 1680
ccttcttctt ctttacgaag taggtgtatt taattttagg tcgaagggca ttgcccacag 1740
taagaacctg gatggtcaa ggctctttga gagggctaaa gctgcgaatt ctttccaatg 1800
ccgcagagga gccgctgtac ctcaagacaa cacctttgta cataatgtct tgctctaagg 1860
tggacaaaagt gtagtcacca ttaagaatat atgtgccatc agcagctttg atggcaagaa 1920
agctgccatt gttcctggat cccctctggg tccgctgttt cacttcgatg ttgggtggctc 1980
cagttggaat tgtgatgata tcatgatatc caggttttgc actagtaact gatcctgata 2040
tttttttaca agtagatcca tttccccgc aaacaccaca tttatcaaac ttcttttttg 2100
agtctatgat gcgatcacia ccagctttta caca

```

## (2) INFORMATION ON SEQ ID NO. 24:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 1626 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 24:

```

ggacaatttc tagaatctat agtagtatca ggatatatatt tgctttaaaa tatatttttg 60
ttatttttgaa tacagacatt ggctccaaat tttcatcttt gcacaatagt atgacttttc 120
actagaactt ctcaacattt gggaactttg caaatatgag catcatatgt gttaaggctg 180
tatcatttaa tgctatgaga tacattgttt tctccctatg ccâaacaggt gaacaaacgt 240
agttgttttt tactgatact aaatgttggc tacctgtgat tttatagtat gcacatgtca 300
gaaaaaggca agacaaatgg cctcttgtac tgaatacttc ggcaaactta ttgggtcttc 360
attttctgac agacaggatt tgactcaata tttgtagagc ttgcgtagaa tggattacat 420
ggtagtgatg cactggtaga aatgggtttt agttattgac tcagaattca tctcaggatg 480
aatcttttat gtctttttat tgtaagcata tctgaattta ctttataaaag atggtttttag 540
aaagctttgt ctaaaaattt ggcctaggaa tggttaacttc attttcagtt gccaaaggggt 600
agaaaaataa tatgtgtgtt gttatgttta tgtaacata ttattaggta ctatctatga 660
atgtatttaa atatttttca tattctgtga caagcattta taatttgcaa caagtggagt 720
ccatttagcc cagtgggaaa gtcttggaac tcaggttacc cttgaaggat atgctggcag 780
ccatctcttt gatctgtgct taaactgtaa tttatagacc agctaaatcc ctaacttgga 840
tctggaatgc attagttatg ccttgtagca tccccagaat ttcaggggca tctgtgggtt 900
ggtctagtga ttgaaaacac aagaacagag agatccagct gaaaaagagt gatcctcaat 960
atcctaacta actggtcctc aactcaagca gagtttcttc actctggcac tgtgatcatg 1020
aaacttagta gaggggattg tgtgtatttt atacaaattt aatacaatgt cttacattga 1080
taaaattctt aaagagcaaa actgcatttt atttctgcat ccacattcca atcatattag 1140
aactaagata tttatctatg aagatataaa tgggtgcagag agactttcat ctgtggattg 1200
cgttggttct tagggttcct agcactgatg cctgcacaag catgtgatat gtgaaataaa 1260
atggattcct ctatagctaa atgagttccc tctggggaga gttctggtac tgcaatcaca 1320

atgccagatg gtgtttatgg gctatttgtg taagtaagtg gtaagatgct atgaagtaag 1380
tgtgtttgtt ttcattctat ggaaactctt gatgcatgtg cttttgtatg gaataaattt 1440
tggtgcaata tgatgtcatt caactttgca ttgaattgaa ttttggttgt atttatatgt 1500
attatacctg tcacgcttct agttgcttca accattttat aaccattttt gtacatattt 1560
tacttgaaaa tatttttaaa ggaaatttaa ataaacattt gatagtttac ataataaaaa 1620
aaaaaa

```

## (2) INFORMATION ON SEQ ID NO. 25:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 1420 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 25:

gttcagcatt gtttctgctt ctgaaatctg tatagtacac tggtttgtaa tcattatgtc 60  
 ttcattgaaa tccttgctac ttctcttctt cctcaatgaa agacacgaga gacaagagcg 120

acacaagctt aagaaaaacg agcaaggaag agtatcttca ttattctcat tttctctgag 180  
 ttggaaacaa aaacatgaag gactccaact agaagacaga tatttacatt taaatagatt 240  
 agtgggaaaa ctttaagagt ttccacatat tagttttcat tttttgagtc aagagactgc 300  
 tccttgtagt gggagacact agtagtatat gtttgtaatg ttactttaaa attatctttt 360  
 tattttataa ggcccataaa tactgggttaa actctgttaa aagtgggcct tctatcttgg 420  
 atgggtttcac tgccatcagc catgctgata tattagaaat ggcaccccta tctacttact 480  
 ttaatgctta aaattataca taaaatgctt tatttagaaa acctacatga tacagtgggtg 540  
 tcagccttgc catgtatcag tttcacttga aatttgagac caattaaatt tcaactgttt 600  
 aggggtggaga aagagggtact ggaaaacatg cagatgagga tatcttttat gtgcaacagt 660  
 atccttttgca tgggaggaga gttactcttg aaaggcaggc agcttaagtg gacaatgttt 720  
 tgtatatagt tgagaatttt acgacacttt taaaaattgt gtaattgtta aatgtccagt 780  
 tttgctctgt tttgcctgaa gtttttagtat ttgttttcta ggtggacctc tgaaaaccaa 840  
 accagtacct ggggagggtta gatgtgtgtt tcaggccttg agtgtagag tggttttgct 900  
 tgtattttcc tccagagatt ttgaacttta ataattgcgt gtgtgttttt ttttttttaa 960  
 gtggccttgt ttttttttct caagtaaaat tgtgaacata ttccctttat aggggcaggg 1020  
 catgagttag ggagactgaa gagtattgta gactgtacat gtgccttctt aatgtgtttc 1080  
 tcgacacatt ttttttcagt aacttgaaaa ttcaaaaggg acatttggtt aggttactgt 1140  
 acatcaatct atgcataaat ggcagcttgt tttcttgagc cactgtctaa attttgtttt 1200  
 tatagaaatt ttttatactg attgggttcat agatgggtcag ttttgtagac agactgaaca 1260  
 atacagcact ttgccaaaaa tgagtgtagc attgttttaa cattgtgtgt taacacctgt 1320  
 tctttgtaat tgggttgtgg tgcattttgc actacctgga gttacagttt tcaatctgtc 1380  
 agtaaataaa gtgtccttta acttcaaaaa aaaaaaaaaa



## (2) INFORMATION ON SEQ ID NO. 26:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 689 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 26:

```

aaacaaacaa aaaaaaagtt agtactgtat atgtaaatac tagcttttca atgtgctata 60
caaacaatta tagcacatcc ttccttttac tctgtctcac ctccttttagg tgagtgacttc 120
cttaaataag tgctaaacat acatatacgg aacttgaaag ctttggttag ccttgcctta 180
ggtaatcagc ctagtttaca ctgtttccag ggagtagttg aattactata aaccattagc 240
cacttgcttc tgcaccattt atcacaccag gacaggggtct ctcaacctgg gcgctactgt 300
catttggggc caggtgattc ttccttgcaa gggctgtcct gtacctgccc gggcggccgc 360
tcgaagcgtg gtcgcggccg aggtactgaa aggaccaagg agctctggct gccctcagga 420
attccaaatg accgaaggaa caaagcttca gggctctggg tgggtgtctcc cactattcag 480
gaggtggtcg gaggtaacgc agcttcattt cgtccagtcc tttccagtat ttaaagttgt 540
tgtcaagatg ctgcattaaa tcaggcaggt ctacaaaggc atcccaagca tcaaacatgt 600
ctgtgatgaa gtaatcaatg aaacaccgga acctccgacc acctcctgaa tagtgggaga 660
cacaccaga gcctgaagtt tgccttcg

```

## (2) INFORMATION ON SEQ ID NO. 27:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 471 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN  
(C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 27:

```
tcccagcggc atgaagtttg agattggcca ggccctgtac ctgggcttca tctccttcgt 60
ccctctcgtc cattggtggc accctgcttt gcctgtcctg ccaggacgag gcaccctaca 120
agccctaacc caggccccgc ccaggggcac cagcaccact gcaaacaccg cacctgccta 180
ccagccacca gctgcctaca aagacaatcg ggccccctca gtgacctcgg ccaccacagc 240
gggtacaggc tgaacgacta cgtgtgagtc ccacagcct gcttctcccc tgggctgctg 300
tgggctggtt cccggcggga ctgtcaatgg aggcaggggt tccagcacia agtttacttc 360
tgggcaattt ttgtatccaa ggaaataatg tgaatgcgag gaaatgtctt tagagcacag 420
ggacagaggg ggaaataaga ggaggagaaa gctctctata ccaaagactg a
```

## (2) INFORMATION ON SEQ ID NO. 28:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 929 base pairs  
(B) TYPE: Nucleic acid  
(C) STRAND: individual  
(D) TOPOLOGY: linear

## (ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

## (iii) HYPOTHETICAL: NO

## (iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN  
(C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 28:

```
ggtgaactca gtgcattggg ccaatggttc gacacaggct ctgccagcca caaccatcct 60
gctgcttctg acggtttggc tgctggtggg ctttccccctc actgtcattg gaggcattctt 120
tgggaagaac aacgccagcc cctttgatgc accctgtcgc accaagaaca tcgcccggga 180
gattccaacc cagccctggg acaagtctac tgtcatccac atgactggtg gaggccttcct 240
gcctttcagt gccatctctg tggagctgta ctacatcttt gccacagtat ggggtcggga 300
gcagtaacct ttgtacggca tctctctctt tgtcttcgcc atcctgctga gtgtgggggc 360
ttgcatctcc attgcactca cctacttcca gttgtctggg gaggattacc gctgggtggtg 420
gcgatctgtg ctgagtgttg gctccaccgg cctcttcctc ttcctctact cagttttcta 480
ttatgcccgg cgctccaaca tgtctggggc agtacagaca gtagagttct tcggctactc 540
cttactcact ggttatgtct tcttctcat gctgggcacc atctcctttt tttcttcctt 600
aaagttcatc cggatatatc atgttaacct caagatggac tgagttctgt atggcagaac 660
tattgctggt ctctcccttt cttcatgccc tgttgaacte tctctaccagc tctcttctg 720
attgactgaa ttgtgtgatg gcattgttgc cttccctttt tccctttggg tttctcttcc 780
ccagagaggg cctggaaatt ataaatctct atcacataag gattatatat ttgaactttt 840
taagttgcct ttagtttttg tctgtatttt tctttttaca attaccaaaa taaaatttat 900
taagaaaaaa aaaaaaaaaa aaaaaaaaaa
```

## (2) INFORMATION ON SEQ ID NO. 29:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 1775 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 29:

```

gaacgtgatg ggaactttgg gaggatgtct gagaaaatgt ccgaagggat tttggccaac 60
accagaaaac gccaatgtcc taggaattcc ctcccaaaat gcttcccaaa aaattactca 120
ttgacaattc aaattgcact tggctggcgg cagcccgggc ggccttcagt ccgtgtgggg 180
cgcccgcgtg gccttctcct cgtaggactc cccaaactcg ttcactctgc gtttatccac 240
aggataaagc caccgctggt acaggtagac cagaaacacc acgtcgtccc ggaagcaggc 300
cagccggtga gacgtgggca tggatgatga gaaggcaaag acgtcatcaa tgaagggtgt 360
gaaagccttg taggtgaagg ccttccaggg cagatgtgcc actgacttca acttgtagtt 420
cacaaagagc tggggcagca tgaagaggaa accaaaggca tagaccccggt tagacgaagt 480
gttgattaac caggagtacc agctcttata tttgatattc aggagtgaat agacagcacc 540
cccgcacacg agagggtaca gcaggatatga caagtacttc atggcctgag tatcgtaact 600
ctcgggtttt ctctcagatt cgctgtaagt gccaaaactga aattcgggca tcaggcctct 660
ccaaaaaata gtcattcttc atgccttctt cactttccac agctcaatgg cggctccaac 720
accgcgccgg accagcacca gcaggctcgt ctgctcgtcc agcaggaaca gaaagatgac 780
cacggtgctg aagcagcgcc agagcactgc cttggtggac atgccgatca tgctcttctt 840
cttcttccag aaactgatgt cattttttaa ggccaggaaa tcaaagagaa gatggaacgc 900
tgcgacaaag aaggtcagcg ccaggaagta taagtggta tctacaaaaa ttcctttcac 960
ctcatcagca tctttctctg aaaacccgaa ctgctgcagg gagtacacgg cgtcctgcat 1020
gtggatccag aagcgcagcc gccccagtga gaccttgtcg taggacacgg tgaggggcag 1080
ctcggtggtg gagcgggtta tgaccatcag gtccttcacg cggttgctga gctggtcgat 1140
gaacaggatg ggcaggtaat gcacggtttt cccagctgg atcatcttca tgtaccgatg 1200
cacatcggca ggcagggagg acccgtaaaa gacaaagtgt tccgccatca cgttcagcgc 1260
cagccgcggt cgccagtggg acactggctc atccagggca ctgcgtcggt tcttctccgc 1320
ctcgatctgc tgtgtatcag actccccggt gagcagggtg atttcttctg gcttggggag 1380
catgtagggt gtcagaggac tgaccagggt cacctgcttc ccgtcgtgcc acggcaggac 1440
cccagcgtga tggaggaaga tgtaggcata cagcgtccca ttgtttctcg ttttctttgg 1500
tacagaaaca ttaactgtcc tttcaaattt ggactccaca tcaaagtctt ccacattcaa 1560
gaccaggctc atgttgttct cagcaccagc gtgggacctc gtcgtggtgt acacgctcag 1620
ctgcagcttg ggcgcgccgc ccaggtaggg ctggatgcag ttggcgctgc cggagcacgg 1680
gcgggtgtag acgatgccgt acatgacca gcagggtgtc accacgtaga ccacgaacac 1740
gccaccacc aagctggtga aggagctgcg gccc

```

## (2) INFORMATION ON SEQ ID NO. 30:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 4064 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual  
ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 30:

```

ATTTCCTCCC GTTCTTTATC AGAGCCCCCA AAATAAGTAG GAATGGGCAG TGGCTATTCA 60
CATTCACTAC ACCTTTTCCA TTTGCTAATA AGGCCCTGCC AGGCTGGGAG GGAATTGTCC 120
CTGCCTGCTT CTGGAGAAAG AAGATATTGA CACCATCTAC GGGCACCATG GAACTGCTTC 180
AAGTGACCAT TCTTTTTCTT CTGCCCAGTA TTTGCAGCAG TAACAGCACA GGTGTTTTAG 240
AGGCAGCTAA TAATTCACCT GTTGTTACTA CAACAAAACC ATCTATAACA ACACCAAACA 300
CAGAATCATT ACAGAAAAAT GTTGTCACAC CAACAACTGG AACAACTCCT AAAGGAACAA 360
TCACCAATGA ATTACTTAAA ATGTCTCTGA TGTC AACAGC TACTTTTTTA ACAAGTAAAG 420
ATGAAGGATT GAAAGCCACA ACCACTGATG TCAGGAAGAA TGACTCCATC ATTTCAAACG 480
TAACAGTAAC AAGTGTTACA CTTCCAAATG CTGTTTCAAC ATTACAAAGT TCCAAACCCA 540
AGACTGAAAC TCAGAGTTCA ATTAAAACAA CAGAAATACC AGGTAGTGTT CTACAACCAG 600

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ATGCATCACC	TTCTAAAACT	GGTACATTAA	CCTCAATACC	AGTTACAATT	CCAGAAAACA	660
CCTCACAGTC	TCAAGTAATA	GGCACTGAGG	GTGGAAAAAA	TGCAAGCACT	TCAGCAACCA	720
GCCGGTCTTA	TTCCAGTATT	ATTTTGCCCG	TGGTTATTGC	TTTGATTGTA	ATAACACTTT	780
CAGTATTTGT	TCTGGTGGGT	TTGTACCGAA	TGTGCTGGAA	GGCAGATCCG	GGCACACCAG	840
AAAATGGAAA	TGATCAACCT	CAGTCTGATA	AAGAGAGCGT	GAAGCTTCTT	ACCGTTAAGA	900
CAATTTCTCA	TGAGTCTGGT	GAGCACTCTG	CACAAGGAAA	AACCAAGAAC	TGACAGCTTG	960
AGGAATTCTC	TCCACACCTA	GGCAATAATT	ACGCTTAAATC	TTCAGCTTCT	ATGCACCAAG	1020
CGTGGAAAAG	GAGAAAAGTCC	TGCAGAATCA	ATCCCGACTT	CCATACCTGC	TGCTGGACTG	1080
TACCAGACGT	CTGTCCCAGT	AAAGTGATGT	CCAGCTGACA	TGCAATAATT	TGATGGAATC	1140
AAAAAGAACC	CCGGGGCTCT	CCTGTTCTCT	CACATTTAAA	AATTCCATTA	CTCCATTTAC	1200
AGGAGCGTTC	CTAGGAAAAG	GAATTTTAGG	AGGAGAATTT	GTGAGCAGTG	AATCTGACAG	1260
CCCAGGAGGT	GGGCTCGCTG	ATAGGCATGA	CTTTCCTTAA	TGTTTAAAGT	TTCCGGGCC	1320
AAGAATTTTT	ATCCATGAAG	ACTTTCCTAC	TTTTCTCGGT	GTTCTTATAT	TACCTACTGT	1380
TAGTATTTAT	TGTTTACCAC	TATGTTAATG	CAGGGAAAAG	TTGCACGTGT	ATTATTAAAT	1440
ATTAGGTAGA	AATCATACCA	TGCTACTTTG	TACATATAAG	TATTTTATTC	CTGCTTTCGT	1500
GTTACTTTTA	ATAAATAACT	ACTGTACTCA	ATACTCTAAA	AATACTATAA	CATGACTGTG	1560
AAAATGGCAA	AAAAATTGTC	TTCCTATAAT	TATGAATATT	TTTGGATGGA	TTATTAGAAT	1620
ACATGAACTC	ACTAATGAAA	GGCATTGTGA	ATAAGTCAGA	AAGGGACATA	GGATTACACAT	1680
ATCAGACTGT	TAGGGGGAGA	GTAATTTATC	AGTTCTTTGG	TCTTTCTATT	TGTCATTTCAT	1740
ACTATGTGAT	GAAGATGTAA	GTGCAAGGGC	ATTTATAACA	CTATACTGCA	TTCATTAAGA	1800
TAATAGGATC	GATATTTTTC	ATTAACCTAT	TTGATTGATA	TTATCTCCAT	GCAATTTTTA	1860
TTTCTTTTAG	AAATGTAATT	ATTTGTTCTA	GCAATCATTG	CTAACCTCTA	GTTTGTAGAA	1920
AATCAACACT	TTATAAATAC	ATAATTATGA	TATTATTTTT	CATTGTATCA	CTGTTCTAAA	1980
AATACCATAT	GATTATAGCT	GCCACTCCAT	CAGGAGCAAA	TTCTTCTGTT	AAAAGCTAAC	2040
TGATCAACCT	TGACCACTTT	TTTGACATGT	GAGATCAAAG	TGTCAAGTTG	GCTGAGGTTT	2100
TTTGAAAAGC	TTTAGAACTA	ATAAGCTGCT	GGTGGCAGCT	TTGTAACGTA	TGATTATCTA	2160
AGCTGATTTT	GATGCTAAAT	TATCTTAGTG	ATCTAAGGGG	CAGTTTAGTG	AAGATGGAAT	2220
CTTGATTTTA	AAATAGCCTT	TTAAAATTGT	TTTGTGGTG	ATGTATTTTG	ACAACTTCCA	2280
TCTTTAGGAG	TTATATAATC	ACCTTGATTT	TATGTTCCCTG	ATGTTTGGAC	TATTTATAAT	2340
CAAGGACACC	AAGCAAGCAT	AAGCATATCT	ATATTTCTGA	CTGGTGTCTC	TTTGAGAAGG	2400
ATGGGAAGTA	GAAGAAAAAA	AAAGAAAGAA	AGGAAAGGAA	GAGAGGAGAG	AAGAAGGCAG	2460
GGATCTCCAC	TATGTATGTT	TTCACTTTAG	AACGTGTTGAG	CCCATGCTTA	ATTTTAATCT	2520
AGAACTCTTT	AAATGGTGAG	ACAGTGACTG	GAGCATGCCA	ATCAGAGAGC	ATTTGTCTTC	2580
AGAAAAAA	AAAATCTGAG	TTTGAGACTA	GCCTGGCCAA	CATGTTGAAA	CCCCATATCT	2640
ACTAAAAATA	CAAAAATTAG	CCTGGTGTGG	TGGCGCACGC	CTGTAGTCCC	AGCTACTCTG	2700
GAGCTTGAGG	AACGTGAATC	GCTTGAACCC	AGAAGACAGA	GGTTGCAGTG	AGCTGAGATG	2760
GCACTATTGC	ACTCCAGCCT	GGGTGACACA	GCAAGACTCT	GTCTCAAAAA	AAAAA	2820
AAAAAAGGAA	AAAAAAGAAA	GAAAGAAAAA	AAAAAGAGAG	AGAGAGAGTC	CCAGCACACC	2880
TAGATAATTT	ACCGAGCTCT	TCAGCAAAAA	CCATGTTACA	TACAGCATAT	TCCAAAGAAA	2940
TGAACTCTTC	TGCAATTTAA	ATTATAAGTA	ATATGTTATT	TTGGATCCTA	GAGAAACCAT	3000
TTTCTCTACA	TTTCATGAGC	ATTGTTAGAA	AAGAGTTTAC	AAGAATTAGG	AAGAGGGAAC	3060
AATTTTAATG	GTCAGAAAAG	AATAAAATTT	ATTCCTAGTT	AAGAAGTGCA	CACAAAGAAT	3120
ATGCATTAAT	CTAACAACCTA	TGAGATTAAA	TCTTTCAAAA	AGGTCAAAGG	AGGATTGAGA	3180
AGTTTACAGA	GATGTCCACG	GCATTTTATA	TCAATCTCAA	AGGTAAGGTC	TGCATTTTTA	3240
TAAACCAACT	TAAACTTCTG	TTGAGATAGG	ATATTTTGTT	TTCAAGCCAA	AATTACCATT	3300
AATCAAATAT	GTTTTAATTA	TCTGATTTAG	ATGATCTACT	TTTTATGCCT	GGCTTACTGT	3360
AAGTTTTTTA	TTCTGATACA	CAGTTCAAAC	ATCATTGCAA	CAAAGAAGTG	CCTGTATTTA	3420
GATCAAAGGC	AAGACTTTCT	ATGTGTTTGT	TTTGCAATAA	AATATGAATA	TAATTTAAGT	3480
CTATCAATAG	TCAAAAACATA	AACAAAAGCT	AATTAACCTG	CACTGTTGTC	ACCTGAGACT	3540
AAGTGGATGT	TGTTGGCTGA	CATACAGGCT	CAGCCAGCAG	AGAAAGAATT	CTGAATTTCC	3600
CTTGCTGAAC	TGAACCTATC	TGTTACATAT	GGTTGACAAA	TCTGTGTGTT	ATTTCTTTTC	3660
TACCTACCAT	ATTTAAATTT	ATGAGTATCA	ACCGAGGACA	TAGTCAAACC	TTCGATGATG	3720
AACATTCCTG	ATTTTTTGCC	TGATTAATCT	CTGTTGAGCT	CTACTTGTGG	TCATTCAAGA	3780
TTTTATGATG	TTGAAAGGAA	AAGTGAATAT	GACCTTTAAA	AATTGTATTT	TGGGTGATGA	3840
TAGTCTCACC	ACTATAAAAC	TGTCAATTAT	TGCCTAATGT	TAAAGATATC	CATCATTGTG	3900
ATTAATTTAA	CCTATAATGA	GTATTCTTAA	TGGGAATTC	TTAATGGATG	GATTATCCCC	3960
TGATCTTTTC	TTTAAATTTT	CTCTGCACAC	ACAGGACTTC	TCATTTTCCA	ATAAATGGGT	4020
GTACTCTGCC	CCAATTTCTA	GGGAAAAAAA	AAAAA	AAAA		

## (2) INFORMATION ON SEQ ID NO. 31:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 750 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 31:

```

cacttgggca ccccatTTTT ctaaaaaaat ggaaatctgg agggcaaaaa aggtgtgctg 60
aagggaagtg cctctgatgg cccaaaaaacc ttcttccaaa ctagtgtagg aatggaatgg 120
atagcaaatg gatcctTTTT ggctcctttt ggagcatgcc ttccctatct tatccttggc 180
ccactaaaag cagaacgtta cggatatttc tgtttttgcc attggatgcc tatctggcca 240
aacagccttt ccctaattgg aaaatgcagt cctgtttaaa acccttgatt tacgactact 300
tgtacatgct tgctcattac aattttgaca ttttttacct agtgaagacc ccaaacatat 360
cagtgaacaa tgacaagatc ataaagaaca gtatcatatt attatttagt cgcttttaca 420
gtggcaagcc aattttgaaa tatctcattt aaaactcaga cccaattcac tgagttatac 480
ttttaatagc ttcttcagca cactatttcc catgcattaa atatgataaa ataatctatc 540
actgcccacg ggtcttgtaa aaaggaagtc tgaatacaga gccacaaca ctadaattgt 600

ttttctagct acaaagtata gcatcatcaa cacagacacg atttggactc cctgacaggt 660
ggattggaaa acggtgttta aagagaagag aacattttta cataaatgtc attaagaatc 720
ccaaaggcct tatttgtcac caccgtcccg

```

## (2) INFORMATION ON SEQ ID NO. 32:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 1620 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:

(A) ORGANISM: HUMAN

(C) ORGAN:

(vii) OTHER ORIGIN:

(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 32:

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gcaattcccc cctcccaacta aacgactccc agtaattatg tttacaaccc attggatgca 60
gtgcagccat tcataagaac cttgggtgccc cagaaaaatc tgtccttttt ggtaccaaac 120
ctgaggtctt ttggaagata atgtagaaaa ccactaccta ttgaaggcct gttttggcta 180
atctgtgcaa actctgatga tacctgcctt atgtggattc ttttccacac tgctttcatt 240
tttaagtata aagacttaga aaactagaat aatgctttta caaataatta aaagtatgtg 300

atgttctggg ttttttcctt ctttttagaa ccccgccctc atttaaaaaa ttaaaaaaaa 360
aaaaaaaaact ttttaacattt aaaaaataaa aattaacaaa atttcactta ttccaggaca 420
cgctggcatt tggactcaat gaaaagggca cctaaagaaa ataaggctga ctgaatgttt 480
tcataatttt tcacacaata acagtcacct tctatccagc ttgcctttcca tttatctcta 540
gggttagctt ttcaggcaac atccttggtc attgccaga aagtacctga gctatcagtg 600
attggaatgg cacaggaaac cgaatcacat ggggtgccctc cccttggttt tcaagtattc 660
tggagttgtg cacaaaaatt aggtcatgcc ttcagtgtct tgttctttaa acctaccctt 720
tgacaatcag gtgctaataa ttgtatacta ttaaaaccag cacataagta ttgtaaatgt 780
gtgttcctcc taggttggaa gaaatgtctt tccttctatc tgggtcctgt taaagcgggt 840
gtcagttgtg tcttttcacc tcgatttgtg aattaataga attgggggga gaggaaatga 900
tgatgtcaat taagtttcag gtttggcatt atcatcattc tcgatgatat tctcactttg 960
tcgcaaactc gcccttatcg taagaacaag tttcagaatt ttccctccac tatacgactc 1020
cagtattatg tttacaatcc attggatgag tgcagcatta taagaccttg gtgccagaa 1080
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attcttttcc acactgtctt catttttaag tataaagact tagaaaacta gaataatgct 1260
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ccaaatcaaa aacccaacgc gtaaaacagg gcagtatttg tgttcctaatt tttaaaaagc 1440
tttatgtata ctctataaat atagatgcac aaacaacact tccccttgag tagcacatca 1500
acatacagca ttgtacatta caatgaaaat gtgtaactta agggatttat atatataaat 1560
acatatatac ctttgtaacc tttatactgt aaataaaaaa gttgcttttag tcaaaaaaaa 1620

```

(2) INFORMATION ON SEQ ID NO. 33:

(i) SEQUENCE CHARACTERISTIC:

(A) LENGTH: 2968 base pairs

(B) TYPE: Nucleic acid

(C) STRAND: individual

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:

(A) ORGANISM: HUMAN

(C) ORGAN:

(vii) OTHER ORIGIN:

(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 33:

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gaaaaagtag aaggaaacac agttcatata gaagtaaaag aaaaccctga agaggaggag 60
gaggaggaag aagaggaaga agaagatgaa gaaagtgaag aggaggagga agaggaggga 120
gaaagtgaag gcagtgaagg tgatgaggaa gatgaaaagg tgtcagatga gaaggattca 180
gggaagacat tagataaaaa gccaaagtaaa gaaatgagct cagattctga atatgactct 240
gatgatgata ggactaaaga agaaagggct tatgacaaag caaaacggag gattgagaaa 300
cggcgacttg aacatagtaa aaatgtaaac accgaaaagc taagagcccc tattatctgc 360
gtacttggggc atgtggacac agggaagaca aaaattctag ataagctccg tcacacacat 420
gtacaagatg gtgaagcagg tggatcaca caacaaattg gggccacca tgttcctctt 480
gaagctatta atgaacagac taagatgatt aaaaattttg atagagagaa tgtacggatt 540
ccaggaatgc taattattga tactcctggg catgaatctt tcagtaatct gagaaataga 600
ggaagctctc tttgtgacat tgccatttta gttgttgata ttatgcatgg tttggagccc 660
cagacaattg agtctatcaa ccttctcaaa tctaaaaaat gtcccttcat tgttgactc 720
aataagattg ataggttata tgattgaaa aagagtcctg actctgatgt ggctgctact 780
ttaagaagc agaaaaagaa tacaaaagat gaatttgagg agcgagcaaa ggctattatt 840
gtagaatttg cacagcaggg tttgaatgct gctttgtttt atgagaataa agatccccgc 900
acttttgtgt ctttgggtacc tacctctgca catactgggt atggcatggg aagtctgatc 960
taccttcttg tagagttaac tcagaccatg ttgagcaaga gacttgaca ctgtgaagag 1020
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atcttgatca atgggcgttt gaaggaagga gatacaatca ttgttctctg agtagaaggg 1140
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aagaaccagt atgaaaagca taaagaagta gaagcagctc aggggggtaa gattccttga 1260
aaagacctgg agaaaacatt ggctggttta cccctccttg tggcttataa agaagatgaa 1320
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ttaagaagaa aaggagtcta tgtccaggca tctacactgg gttctttgga agctctactg 1440
gaatttctga aaacatcaga agtgccctat gcaggaaat aacattggccc agtgcataaa 1500
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tacaagaaac agaaacaaga agaattttaag cacatagcag tatttccctg caagataaaa 1740
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gcaggtcagg tgaacacagg gacacccatg tgtgtcccaa gcaaaaattt tgttgacatc 1860
ggaattctga caagtattga aataaacatt aaacaagtgg atgttgcaaa aaaaggacaa 1920
gaagttttgt taaaaataga acctatccct ggtgagtcac ccaaaatgtt tggaaagacat 1980
tttgaagcta cagatattct tgttagtaag atcagccggc agtccattga tgcactcaaa 2040
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gttgtaatat cccaacaaaa atcagacaaa aaatggaaca gacgtatttg gacactgatg 2220
gacttaagta tggaaggaag aaaaataggt gtataaaatg ttttccatga gaaaccaaga 2280
aacttacact ggtttgacag tggtcagtta catgtcccca cagttccaat gtgctgttcc 2340
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cccaaatttg gatttttatt acagatctaa agctctttcg attttatact gattaaatca 2460
gtactgcagt atttgattaa aaaaaaaaaa gcagattttg tgattcttgg gacttttttg 2520
acgtaagaaa tacttcttta tttatgcata ttcttccac agtgattttt ccagcattct 2580
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agctgctttg tgtgaaacca tgggtgtaaaa gcacagctgg ctgcttttta ctgcttgtgt 2700
agtcacgagt ccattgtaat catcacaatt ctaaaccaaa ctaccaataa agaaaacaga 2760
catccaccag taagcaagct ctgtaggct tccatggtta gtggtagctt ctctccaca 2820
agttgtcctc ctaggacaag gaattatctt aacaaactaa actatccatc acactacctt 2880
ggtatgccag cacctgggta acagtaggag attttataca ttaatctgat ctgtttaatc 2940
tgatcggttt agtagagatt ttatacat

```



## (2) INFORMATION ON SEQ ID NO. 34:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 6011 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual  
ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 34:

ACGGGGCGCC	GGACGACCCG	CACATCTTAT	CCTCCACGCC	CCACTCGCAC	TCGGAGCGGG	60
ACCGCCCCGG	ACTCCCCCTC	GGGCCGGCCA	CTCGAGGAGT	GAGGAGAGAG	GCCGCCGGCC	120
CGGCTTGAGC	CGAGCGCAGC	ACCCCCGCG	CCCCGCGCCA	GAAGTTTGGT	TGAACCGGGC	180
TGCCGGGAGA	AACTTTTTTC	TTTTTCCCC	CTCTCCCGGG	AGAGTCTCTG	GAGGAGGAGG	240
GGAAC TCCCC	CGGCCCAAGG	CTCGTGGGCT	CGGGGTGCGG	CGGCCGAGAG	AGGGGCGGGG	300
TCCGCCCGCG	AGGGGAGGCG	CCCCCGGGGA	CCCGAGAGGG	GGGTGAGGAC	CGCGGGCTGC	360
TGGTGCGGCG	GCGGCAGCGT	GTGCCCCGCG	CAGGGGAGGC	GCCGCCCCGC	TCCCGGCCCG	420
GCTGCGAGGA	GGAGGCGGCG	GCGGCGCAGG	AGGATGTACT	TGGTGGCGGG	GGACAGGGGG	480
TTGGCCGGCT	GCGGGCACCT	CCTGGTCTCG	CTGCTGGGGC	TGCTGCTGCT	GCCGGCGCGC	540
TCCGGCACCC	GGGCGCTGGT	CTGCCTGCC	TGTGACGAGT	CCAAGTGCGA	GGAGCCCAGG	600
AACCGCCCCG	GGAGCATCGT	GCAGGGCGTC	TGCGGCTGCT	GCTACACGTG	CGCCAGCCAG	660
GGGAACGAGA	GCTGCGGCGG	CACCTTCGGG	ATTTACGGAA	CCTGCGACCG	GGGGCTGCGT	720
TGTGTCTATC	GCCCCCGGCT	CAATGGCGAC	TCCCTCACCG	AGTACGAAGC	GGGCGTTTGC	780
GAAGATGAGA	ACTGGACTGA	TGACCAACTG	CTTGTTTTTA	AACCATGCAA	TGAAAACCTT	840
ATTGCTGGCT	GCAATATAAT	CAATGGGAAA	TGTGAATGTA	ACACCATTCTG	AACCTGCAGC	900
AATCCCTTTG	AGTTTCCAAG	TCAGGATATG	TGCCTTTCAG	CTTTAAAGAG	AATTGAAGAA	960
GAGAAGCCAG	ATTGCTCCAA	GGCCCCGCTG	GAAGTCCAGT	TCTCTCCACG	TTGTCCTGAA	1020
GATTCTGTTC	TGATCGAGGG	TTATGCTCCT	CCTGGGGAGT	GCTGTCCCTT	ACCCAGCCGC	1080
TGCGTGTGCA	ACCCCGCAGG	CTGTCTGCGC	AAAGTCTGCC	AGCCGGGAAA	CCTGAACATA	1140
CTAGTGTCAA	AAGCCTCAGG	GAAGCCGGGA	GAGTGTCTGT	ACCTCTATGA	GTGCAAAACA	1200
GTTTTTCGGCG	TGGACTGCAG	GACTGTGGAA	TGCCCTACTG	TTCAGCAGAC	CGCGTGTCCC	1260
CCGGACAGCT	ATGAAACTCA	AGTCAGACTA	ACTGCAGATG	GTTGCTGTAC	TTTGCCAACA	1320
AGATGCGAGT	GTCTCTCTGG	CTTATGTGGT	TTCCCCGTGT	GTGAGGTGGG	ATCCACTCCC	1380
CGCATAGTCT	CTCGTGGCGA	TGGGACACCT	GGAAAGTGCT	GTGATGTCTT	TGAATGTGTT	1440
AATGATACAA	AGCCAGCCTG	CGTATTTAAC	AATGTGGAAT	ATTATGATGG	AGACATGTTT	1500
CGAATGGACA	ACTGTGCGTT	CTGTGATGTC	CAAGGGGGCG	TTGCCATCTG	CTTCACCGCC	1560
CAGTGTGGTG	AGATAAACTG	CGAGAGGTAC	TACGTGCCCC	AAGGAGAGTG	CTGCCCAGTG	1620
TGTGAAGATC	CAGTGTATCC	TTTTAATAAT	CCCCTGGGCT	GCTATGCCAA	TGGCCTGATC	1680
CTTGCCACAG	GAGACCGGTG	GCGGGAAGAC	GAGTGCACAT	TCTGCCAGTG	CGTCAACGGT	1740
GAACGCCACT	GCGTTGCGAC	CGTCTGCGGA	CAGACCTGCA	CAAACCCTGT	GAAAGTGCCCT	1800
GGGGAGTGTT	GCCCTGTGTG	CGAAGAACCA	ACCATCATCA	CAGTTGATCC	ACCTGCATGT	1860
GGGGAGTTAT	CAAAC TGCAC	TCTGACACGG	AAGGACTGCA	TTAATGGTTT	CAAACGCGAT	1920
CACAATGGTT	GTCGGACCTG	TCAGTGCATA	AACACCCAGG	AACTATGTTT	AGAACGTAAA	1980
CAAGGCTGCA	CCTTGAAC T	TCCCTTCGGT	TTCCCTTACTG	ATGCCCAAAA	CTGTGAGATC	2040
TGTGAGTGCC	GCCCCAAGGCC	CAAGAAGTGC	AGACCCATAA	TCTGTGACAA	GTATTGTCCA	2100
CTTGAGATGC	TGAAGAATAA	GCACGGCTGT	GACATCTGTC	GCTGTAAGAA	ATGTCCAGAG	2160
CTCTCATGCA	GTAAGATCTG	CCCCTTGGGT	TTCCAGCAGG	ACAGTCACGG	CTGTCTTATC	2220
TGCAAGTGCA	GAGAGGCCTC	TGCTTCAGCT	GGGCCACCCA	TCCTGTGCGG	CACCTGTCTC	2280
ACCGTGGATG	GTCATCATCA	TAAAAATGAG	GAGAGCTGGC	ACGATGGGTG	CCGGGAATGC	2340
TACTGTCTCA	ATGGACGGGA	AATGTGTGCC	CTGATCACCT	GCCCGGTGCC	TGCCTGTGGC	2400
AACCCACCA	TTCACCCCTG	ACAGTGCTGC	CCATCATGTG	CAGATGACTT	TGTGGTGCAG	2460
AAGCCAGAGC	TCAGTACTCC	CTCCATTGTC	CACGCCCTTG	GAGGAGAATA	CTTTGTGGAA	2520
GGAGAAACGT	GGAACATTGA	CTCCTGTACT	CAGTGCACCT	GCCACAGCGG	ACGGGTGCTG	2580
TGTGAGACAG	AGGTGTGCCC	ACCGTGTCTC	TGCCAGAACC	CCTCACGCAC	CCAGGATTCC	2640
TGCTGCCCAC	AGTGTACAGA	TCAACCTTTT	CGGCCCTTCCT	TGTCCCGCAA	TAACAGCGTA	2700
CCTAATTACT	GCAAAAATGA	TGAAGGGGAT	ATATTCTCTG	CAGCTGAGTC	CTGGAAGCCT	2760
GACGTTTGTA	CCAGCTGCAT	CTGCATTGAT	AGCGTAATTA	GCTGTTTCTC	TGAGTCTCTG	2820
CCTTCTGTAT	CCTGTGAAAG	ACCTGTCTTG	AGAAAAGGCC	AGTGTGTGTC	CTACTGCATA	2880
AAAGACACAA	TTCCAAAGAA	GGTGGTGTGC	CACCTTCAGTG	GGAAGGCCTA	TGCCGACGAG	2940
GAGCGGTGGG	ACCTTGACAG	CTGCACCCAC	TGCTACTGCC	TGCAGGGCCA	GACCCTCTGC	3000
TCGACCGTGA	GCTGCCCCC	TCTGCCCTGT	GTTGAGCCCA	TCAACGTGGA	AGGAAGTTGC	3060
TGCCCCAATG	TGCCAGAAAT	GTATGTCCCA	GAACCAACCA	ATATACCCAT	TGAGAAGACA	3120
AACCATCGAG	GAGAGGTTGA	CCTGGAGGTT	CCCCTGTGGC	CCACGCCTAG	TGAAAATGAT	3180
ATCGTCCATC	TCCCTAGAGA	TATGGGTCAC	CTCCAGGTAG	ATTACAGAGA	TAACAGGCTG	3240
CACCCAAGTG	AAGATTCTTC	ACTGGACTCC	ATTGCCCTCAG	TTGTGGTTCC	CATAATTATA	3300
TGCCTCTCTA	TTATAATAGC	ATTCTTATTC	ATCAATCAGA	AGAAACAGTG	GATACCACTG	3360
CTTTGCTGGT	ATCGAACACC	AACTAAGCCT	TCTTCCTTAA	ATAATCAGCT	AGTATCTGTG	3420
GACTGCAAGA	AAGGAACCAG	AGTCCAGGTG	GACAGTTCCC	AGAGAATGCT	AAGAATTGCA	3480

```

GAACCAGATG CAAGATTCAG TGGCTTCTAC AGCATGCAAA AACAGAACCA TCTACAGGCA 3540
GACAATTTCT ACCAAACAGT GTGAAGAAAG GCAACTAGGA TGAGGTTTCA AAAGACGGAA 3600
GACGACTAAA TCTGCTCTAA AAAGTAACT AGAATTTGTG CACTTGCTTA GTGGATTGTA 3660
TTGGATTGTG ACTTGATGTA CAGCGCTAAG ACCTTACTGG GATGGGCTCT GTCTACAGCA 3720
ATGTGCAGAA CAAGCATTCC CACTTTTCCT CAAGATAACT GACCAAGTGT TTTCTTAGAA 3780
CCAAAGTTTT TAAAGTTGCT AAGATATATT TGCCTGTAAG ATAGCTGTAG AGATATTTGG 3840
GGTGGGGACA GTGAGTTTGG ATGGGGAAAG GGGTGGGAGG GTGGTGTGG GAAGAAAAAT 3900
TGGTCAGCTT GGCTCGGGGA GAAACCTGGT AACATAAAAG CAGTTCAGTG GCCCAGAGGT 3960
TATTTTTTTC CTATTGCTCT GAAGACTGCA CTGGTTGCTG CAAAGCTCAG GCCTGAATGA 4020
GCAGGAAACA AAAAAGGCCT TGCAGCCAG CTGCCATAAC CACCTTAGAA CTACCAGACG 4080
AGCACATCAG AACCCTTTGA CAGCCATCCC AGGTCTAAAG CCACAAGTTT CTTTTCTATA 4140
CAGTCACAAC TGCAGTAGGC AGTGAGGAAG CCAGAGAAAT GCGATAGCGG CATTCTCTTA 4200
AAGCGGGTTA TTAAGGATAT ATACAGTTAC ACTTTTGTCT GCTTTTATTT TCTTCCAAGC 4260
CAATCAATCA GCCAGTTCCT AGCAGAGTCA GCACATGAAC AAGATCTAAG TCATTTCTTG 4320
ATGTGAGCAC TGGAGCTTTT TTTTTTTTACA ACGTGACAGG AAGAGGAGGG AGAGGGTGAC 4380
GAACACCAGG CATTTCCAGG GGCTATATTT CACTGTTTGT TGTTGCTTTG TTCTGTTATA 4440
TTGTTGGTTG TTCATAGTTT TTGTTGAAGC TCTAGCTTAA GAAGAACTT TTTTTAAAAA 4500
GACTGTTTGG GGATTCTTTT TCCTTATTAT ATACTGATTC TACAAAATAG AAATACTTC 4560
ATTTTAATTG TATATTATTC AAGCACCTTT GTTGAAGCTC AAAAAAATG ATGCCTCTTT 4620
AACTTTTAGC AATTATAGGA GTATTTATGT AACTATCTTA TGCTTCAAAA AACAAAAGTA 4680
TTTGTGTGCA TGTGTATATA ATATATATAT ATACATATAT ATTTATACAC ATACAATTTA 4740
TGTTTTCTTG TTGAATGTAT TTTTATGAGA TTTTAACCAG AACAAAGGCA GATAAACAGG 4800
CATCCATAG CAGTGCCTTT GATCACTTAC AAATTTTTTG AATAACACAA AATCTCATT 4860
TACCTGCAGT TTAATTGGAA AGATGTGTGT GTGAGAGTAT GTATGTGTGT GTGTGTGTGT 4920
GTGTGTGCGC GCGCACGCAC GCCTTGAGCA GTCAGCATTG CACCTGCTAT GGAGAAGGGT 4980
ATTCCTTTAT TAAAATCTTC CTCATTTGGA TTTGCTTTCA GTTGGTTTTT AATTGTCTCA 5040
CTGGCCAGAG ACATTGATGG CAGTTCCTAT CTGCATCACT AATCAGCTCC TGGATTTTTT 5100
TTTTTTTTTT TCAAACAATG GTTTGAAACA ACTACTGGAA TATTGTCCAC AATAAGCTGG 5160
AAGTTTGTTG TAGTATGCCT CAAATATAAC TGACTGTATA CTATAGTGGT AACTTTTCAA 5220
ACAGCCCTTA GCACTTTTAT ACTAATTAAC CCATTTGTGC ATTGAGTTTT CTTTTAAAAA 5280
TGCTTGTTGT GAAAGACACA GATACCCAGT ATGCTTAACG TGAAAAGAAA ATGTGTTCTG 5340
TTTTGTAAAG GAACTTTCAA GTATTGTTGT AAATACTTGG ACAGAGGTTG CTGAACTTTA 5400
AAAAAAATTA ATTTATTATT ATAATGACCT AATTTATTAA TCTGAAGATT AACCATTTTT 5460
TTGTCTTAGA ATATCAAAAA GAAAAAGAAA AAGGTGTTCT AGCTGTTTGC ATCAAAGGAA 5520
AAAAAGATTT ATTATCAAGG GGCAATATTT TTATCTTTTC CAAAATAAAT TTGTTAATGA 5580
TACATTACAA AAATAGATTG ACATCAGCCT GATTAGTATA AATTTTGTTG GTAATTAATC 5640
CATTCCTGGC ATAAAAAGTC TTTATCAAAA AAAATTGTAG ATGCTTGCTT TTTGTTTTTT 5700
CAATCATGGC CATATTATGA AAATACTAAC AGGATATAGG ACAAGGTGTA AATTTTTTTA 5760
TTATTATTTT AAAGATATGA TTTATCCTGA GTGCTGTATC TATTACTCTT TACTTTGGT 5820
TCCTGTGTGT CTCTTGTAAG AGAAAAATAT AATTTCTTGA AGAATAAAAT AGATATATGG 5880
CACTTGAGT GCATCATAGT TCTACAGTTT GTTTTTGTTT TCTTCAAAAA AGCTGTAAGA 5940
GAATTATCTG CAACTTGATT CTTGGCAGGA AATAAACATT TTGAGTTGAA ATCAAAAAAA 6000
AAAAA A

```

(2) INFORMATION ON SEQ ID NO. 34a:

(i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 1036 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:

(A) ORGANISM: HUMAN

(C) ORGAN:

(vii) OTHER ORIGIN:

(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 34a:

Protein sequence derived from Seq. ID No. 34, Start: 454bp,  
Stop: 3559bp

```

MYLVAGDRGL AGCGHLLVSL LGLLLLPAARS GTRALVCLPC DESKCEEPRN RPGSIVQGVC 60
GCCYTCASQG NESCGGTFGI YGTCDRGLRC VIRPPLNGDS LTEYEAGVCE DENWTDDQLL 120
GFKPCNENLI AGCNIINGKC ECNTIRTCSN PFEFPSQDMC LSALKRIEEE KPDCSKARCE 180
VQFSRCPED SVLIEGYAPP GECCPLPSRC VCNFAGCLRK VCQPGNLNIL VSKASGKPGE 240
CCDLYECKPV FGVDCRTVEC PTVQQTACPP DSYETQVRLT ADGCCTLPTR CECLSGLCGF 300
PVCEVGSTPR IVSRGDGTPG KCCDVFEDEV DTKPACVFNN VEYDGDGDMFR MDNCRFCRCQ 360
GGVAICFTAQ CGEINCERY YPEGECCPVC EDPVYPFNNP AGCYANGLIL AHGDRWREDD 420
CTFCQCNGE RHC VATVCGQ TCTNPVKVPG ECCPVCEEPT IITVDPPACG ELSNCTLTRK 480
DCINGFKRDH NGCRTCQCIN TQELCSEKQ GCTLNCPFGF LTDAQNCEIC ECRPRPKKCR 540
PIICDKYCLP GLLKNKHGCD ICRCKKCPCL SCSKICPLGF QQDSHGCLIC KCREASASAG 600
PPILSGTCLT VDGHHHKNKE SWHDGCRECY CLNGREMCAL ITCVPACGN PTIHGQCCP 660
SCADDFVQK PELSTPSICH APGGEYFVEG ETWNIDSCTQ CTCHSGRVLC ETEVCPPLL 720
QNPSRTQDSC CPQCTDQPF PSLSRNNSVP NYCKNDEGDI FLAAESWKPD VCTSCICIDS 780
VISCFSSECP SVSCERPVLK KGQCCPYCIK DTIPKVVCH FSGKAYADEE RWDLDSC THD 840
YCLQGQTLCS TVSCPPLPCV EPINVEGSC PMCPMEYVPE PTNIPIEKTN HRGEVDLEVP 900
LWPTPSENDI VHLPRDMGHL QVDYRDNRHL PSEDSSLDSI ASVVVPIIIC LSIIIAFLFI 960
NQKKQWIPLL CWYRTPTKPS SLNNQLVSVD CKKGTRVQVD SSQRMRLIAE PDARFSGFYS 1020
MQKQNHQLAD NFIQTV

```

(2) INFORMATION ON SEQ ID NO. 35:

(i) SEQUENCE CHARACTERISTIC:

(A) LENGTH: 716 base pairs

(B) TYPE: Nucleic acid

(C) STRAND: individual

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual  
ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:

(A) ORGANISM: HUMAN

(C) ORGAN:

(vii) OTHER ORIGIN:

(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 35:

```
gcagtacctg gagtgtcctg cagggggaaa gcgaaccggg ccctgaagtc cggggcagtc 60
acccggggct cctgggccgc tctgccgggc tggggctgag cagcgatcct gctttgtccc 120
agaagtccag agggatcagc cccagaacac accctectcc ccgggacgcc gcagctttct 180
ggaggctgag gaaggcatga agagtgggct ccacctgctg gccgactgag aaaagaattt 240
ccagaactcg gtcctatattt acagattgag aaactatggt tcaagaagag aggacggggc 300
ttgagggaat ctctgattc tccttatatg acctcaaact gaccatacta aacagtgtag 360
aaggctcttt taaggctcta aatgtcaggg tctcccatcc cctgatgcct gacttgtaca 420
gtcagtgtgg agtagacggg ttctccacc cagggttgac tcagggggat gatctgggtc 480
ccattctggt cttaagacct caaacaaggg ttttttcagc tccaggatct ggagcctcta 540
tctggttagt gtcgtaacct ctgtgtgcct cccgttaccc catctgtcca gtgagctcag 600
cccccatcca cctaacaggg tggccacagg gattactgag ggtaagacc ttagaactgg 660
gtctagcacc cgataagagc tcaataaatg ttgttcctt ccacatcaaa aaaaaa
```

(2) INFORMATION ON SEQ ID NO. 36:

(i) SEQUENCE CHARACTERISTIC:

(A) LENGTH: 395 base pairs

(B) TYPE: Nucleic acid

(C) STRAND: individual

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:

(A) ORGANISM: HUMAN

(C) ORGAN:

(vii) OTHER ORIGIN:

(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 36:

```
cctaacttct attcttcatt ggtggagaag attgtagact tctaagcatt ttccaaataa 60
aaaagctatg atttgatttc caacttttaa acattgcatg tcctttgcca ttactacat 120
tctccaaaaa aaccttgaaa tgaagaaggc cacccttaaa atacttcaga ggctgaaaat 180
atgattatta cattggaatc ctttagccta tgtgatattt ctttaacttt gcactttcac 240
gccagtaaaa accaaagtca gggtaaccaa tgtcatttta caaaatgtta aaaccctaata 300
tgcagttcct tttttaaat attttaaaga ttacttaaca acattagaca gtgcacaaaaa 360
agaagcaagg aaagcattct taattctacc atcct
```

## (2) INFORMATION ON SEQ ID NO. 37:

- (i) SEQUENCE CHARACTERISTIC:
  - (A) LENGTH: 134 base pairs
  - (B) TYPE: Nucleic acid
  - (C) STRAND: individual
  - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing
- (iii) HYPOTHETICAL: NO
- (iii) ANTI-SENSE: NO
- (vi) ORIGIN:
  - (A) ORGANISM: HUMAN
  - (C) ORGAN:
- (vii) OTHER ORIGIN:
  - (A) LIBRARY: cDNA library
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 37:

```
ccctcgagcg gccgcccggg caggtacttt taccaccgaa ttgttcactt gactttaaga 60
aaccataaaa gctgcctggc ttccagcaac aggcctatca acaccatggt gagtctccat 120
aagggaacac gtgt
```

## (2) INFORMATION ON SEQ ID NO. 38:

- (i) SEQUENCE CHARACTERISTIC:
  - (A) LENGTH: 644 base pairs
  - (B) TYPE: Nucleic acid
  - (C) STRAND: individual
  - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing
- (iii) HYPOTHETICAL: NO
- (iii) ANTI-SENSE: NO
- (vi) ORIGIN:
  - (A) ORGANISM: HUMAN
  - (C) ORGAN:
- (vii) OTHER ORIGIN:
  - (A) LIBRARY: cDNA library

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 38:

```

aagcctgttg tcattggggga ggtggtggcg cttggtggcc actggcggcc gaggtagagg 60
cagtggcgct tgagttggtc gggggcagcg gcagatttga ggcttaagca acttcttccg 120
gggaagagtg ccagtgcagc cactgttaca attcaagatc ttgatctata tccatagatt 180
ggaatatttg tgggccagca atcctcagac gcctcactta ggacaaatga ggaaactgag 240
gcttggtgaa gttacgaaac ttgtccaaaa tcacacaact tgtaaagggc acagccaaga 300
ttcagagcca ggctgtaaaa attaaaatga acaaattaac gcaaagtttt aggagaaaga 360
aggatgttta tgttccagag gccagtcgtc cacatcagtg gcagacagat gaagaaggcg 420
ttcgaccggg aaaatgtagc ttcccgggta agtaccttgg ccatgtagaa gttgatgaat 480
caagaggaaat gcacatctgt gaagatgctg taaaaagatt gaaagctgaa aggaagtctt 540
tcaaaggctt ctttggaaaa actggaaaaga aagcagttta agcagtttct gtgggtctaa 600
gcagatggac tcagagggtt tggtgaaaa actaaggacc tcat

```

## (2) INFORMATION ON SEQ ID NO. 39:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 657 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 39:

```

ctttttgttt gggttttcca atgtagatgt ctcaagtgaat tgtgcagata tactttgttc 60
cttatatggc caccagtgtt aattatggac aaatacatta aaacaagggg tcctggccca 120
gcctcccatc taatctcttt gatactcttg gaatctaagt ctgaggagcg atttctgaat 180
tagccagtgt tgtaccaact ttctgttagg aattgtatta gaataacctt tctttttcag 240
acctgctcag tgagacatct tggggaatga agtaggaaaa tagacatttg gtggaaaaac 300
agcaaaatga gaacattaaa aagactcatt caagtatgag tataaagggc atggaaattc 360
tggtcctttg agcaaaatga gaagaaaaaa ttctgctcag cagtattcac tgtgttaaga 420
ttttttgttt ttacacgaa tggaaaaatg atgtgtaagt ggtatagatt ttaatcagct 480
aacagtcact ccagagattt tgatcagcac caattcctat agtagtaagt atttaaaagt 540
taagaaatac tactacattt aacattataa agtagagttc tggacataac tgaaaattag 600
atgtttgctt caatagaaat ttgttcccac ttgtattttc aacaaaatta tcggaac

```

## (2) INFORMATION ON SEQ ID NO. 40:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 1328 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 40:

```

acaatttttaa aataactagc aattaatcac agcatatcag gaaaaagtac acagtgagtt 60
ctggttagtt tttgtaggct cattatgggt agggtcgtta agatgtatat aagaacctac 120
ctatcatgct gtatgtatca ctcatccat tttcatgttc catgcatact cgggcatcat 180
gctaatatgt atcctttttaa gcactctcaa ggaaacaaaa gggcctttta tttttataaa 240
ggtaaaaaaaa attcccaaaa tattttgcac tgaatgtacc aaaggtgaag ggacattaca 300
atatgactaa cagcaactcc atcacttgag aagtataata gaaaatagct tctaaatcaa 360
acttccttca cagtgccgtg tctaccacta caaggactgt gcactctaagt aataattttt 420
taagattcac tatatgtgat agtatgatat gcattttattt aaaatgcatt agactctctt 480
ccatccatca aatactttac aggatggcat ttaatacaga tatttcgtat ttccccact 540
gcttttttatt tgtacagcat cattaaacac taagctcagt taaggagcca tcagcaacac 600
tgaagagatc agtagtaaga attccatttt cctcatcag tgaagacacc acaaattgaa 660
actcagaact atattttctaa gcctgcattt tcaactgatgc ataattttct tagtaatat 720
aagagacagt ttttctatgg catctccaaa actgcatgac atcactagtc ttacttctgc 780
ttaattttat gagaagggtat tcttcatttt aattgctttt gggattactc cacatctttg 840
tttattttctt gactaatcag attttcaata gagtgaagtt aaattggggg tcataaaagc 900
attggattga catatgggtt gccagcctat gggtttacag gcattgcccc aacattttctt 960
tgagatctat atttataagc agccatggaa ttcctattat gggatgttg caatcttaca 1020
ttttatagag gtcatatgca tagttttcat aggtgttttg taagaactga ttgctctcct 1080
gtgagttaag ctatgtttac tactgggacc ctcaagagga ataccactta tgttacactc 1140
ctgcactaaa ggcacgtact gcagtgtgaa gaaatgttct gaaaaagggt tatagaaatc 1200
tggaataaag aaaggaagag ctctctgtat tctataattg gaagagaaaa aaagaaaaac 1260
ttttaactgg aaatgttagt ttgtacttat tgatcatgaa tacaagtata tatttaattt 1320

```



## (2) INFORMATION ON SEQ ID NO. 41:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 987 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual  
ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 41:

```

aacagagact ggcacaggac ctcttcattg caggaagatg gtagttagg caggtaacat 60
tgagctcttt tcaaaaaagg agagctcttc ttcaagataa ggaagtggta gttatgggtg 120
taacccccgg ctatcagtcc ggatgggtgc caccctcctt gctgtaggat ggaagcagcc 180
atggagtggg agggaggcgc aataagacac ccctccacag agcttggcat catgggaagc 240
tggttctacc tcttcctggc tcctttggtt aaaggcctgg ctgggagcct tccttttggg 300
tgtctttctc ttctccaacc aacagaaaag actgctcttc aaaggtggag ggtcttcattg 360
aaacacagct gccaggagcc caggcacagg gctggggggc tggaaaaagg agggcacaca 420

ggaggaggga ggagctggta gggagatgct ggctttacct aaggtctcga aacaaggagg 480
gcagaatagg cagaggcctc tccgtcccag gcccattttt gacagatggc gggacggaaa 540
tgcaatagac cagcctgcaa gaaagacatg tgttttgatg acaggcagtg tggccgggtg 600
gaacaagcac aggccttggg atccaatgga ctgaatcaga accctaggcc tgccatctgt 660
cagccgggtg acctgggtca attttagcct ctaaaagcct cagtctcctt atctgcaaaa 720
tgaggcttgt gatacctgtt ttgaagggtt gctgagaaaa ttaaagataa gggatatcaa 780
aatagtctac ggccatacca ccctgaacgt gcctaattct gtaagctaag cagggtcagg 840
cctgggttagt acctggatgg ggagagtatg gaaaacatac ctgcccgcag ttggagttag 900
actctgtctt aacagtagcg tggcacacag aaggcactca gtaaatactt gttgaataaa 960
tgaagtagcg atttgggtgt aaaaaaa

```

## (2) INFORMATION ON SEQ ID NO. 42:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 956 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 42:

```

cggacggtgg ggcggacgcg tgggtgcagg agcagggcgg ctgccgactg ccccaaccaa 60
ggaaggagcc cctgagtcct cctgcgcctc catccatctg tccggccaga gccggcatcc 120
ttgcctgtct aaagccttaa ctaagactcc cgccccgggc tggccctgtg cagaccttac 180
tcaggggatg tttacctggt gtcggggaag ggaggggaag gggccgggga gggggcacgg 240
caggcgtgtg gcagccacac gcaggcggcc agggcggcca gggacccaaa gcaggatgac 300
cacgcacctc cagccactg cctccccga atgcatttgg aaccaaagtc taaactgagc 360
tcgcagcccc cgcgcctcc ctcgcctcc catccgctt agcgtctgg acagatggac 420
gcaggccctg tccagcccc agtgcgctcg ttccggctcc cacagactgc cccagccaac 480
gagattgctg gaaaccaagt caggccagg gggcggacaa aagggccagg tgcggcctgg 540
ggggaacgga tgctccgagg actggactgt ttttttcaca catcgttgcc gcagcgggtg 600
gaaggaaagg cagatgtaaa tgatgtgttg gtttacagg tatatttttg ataccttcaa 660
tgaattaatt cagatgtttt acgcaaggaa ggacttaccc agtattactg ctgctgtgct 720
ttgatctct gcttaccgtt caagaggcgt gtgcaggccg acagtcggtg accccatcac 780
tcgcaggacc aagggggcgg ggactgctgg ctacgcccc gctgtgtcct cctccccctc 840
ccttccttgg gcagaatgaa ttcgatgcgt attctgtggc cgccatctgc gcagggtggt 900
ggtattctgt catttacaca cgtcgttcta attaaaaagc gaattatact ccaaaa

```

## (2) INFORMATION ON SEQ ID NO. 43:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 536 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

- (iii) ANTI-SENSE: NO
- (vi) ORIGIN:
  - (A) ORGANISM: HUMAN
  - (C) ORGAN:
- (vii) OTHER ORIGIN:
  - (A) LIBRARY: cDNA library
- (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 43:

```

aaataaacac ttccataaca ttttgttttc gaagtctatt aatgcaatcc cacttttttc 60
cccctagttt ctaaatgtta aagagagggg aaaaaaggct caggatagtt ttcacctcac 120
agtgttagct gtcttttatt ttactcttgg aaatagagac tccattaggg ttttgacatt 180
ttgggaaccc agttttacca ttgtgtcagt aaaacaataa gatagtttga gagcatatga 240
tctaaataaa gacatttgaa gggtttagtt gaattctaaa agtaggtaat agccaaatag 300
cattctcatc ccttaacaga caaaaactta tttgtcaaaa gaattagaaa aggtgaaaat 360
atgttttcca gatgaaactt gtgccacttc caattgacta atgaaatata aggagacaga 420
ctggaaaaag tgggttatgc cacctttaaa accctttctg gtaaataatta tggtagctaa 480
agggtggttt ccccggcacc tggacctgga caggtagggt tccgtgggta accagt

```

(2) INFORMATION ON SEQ ID NO. 44:

- (i) SEQUENCE CHARACTERISTIC:
  - (A) LENGTH: 1630 base pairs
  - (B) TYPE: Nucleic acid
  - (C) STRAND: individual
  - (D) TOPOLOGY: linear
- (ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing
- (iii) HYPOTHETICAL: NO
- (iii) ANTI-SENSE: NO
- (vi) ORIGIN:
  - (A) ORGANISM: HUMAN
  - (C) ORGAN:
- (vii) OTHER ORIGIN:
  - (A) LIBRARY: cDNA library

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 44:

```

ggggaggggac gagtatggaa ccctgaagggt agcaagtcca ggcaactggcc tgaccatccg 60
gctccctggg caccaagtcc caggcaggag cagctgtttt ccatcccttc ccagacaagc 120
tctattttta tcacaatgac ctttagagag gtctcccagg ccagctcaag gtgtcccact 180
atccccctctg gagggaagag gcaggaaaat tctccccggg tccctgtcat gctactttct 240
ccatcccagt tcagactgtc caggacatct tatctgcagc cataagagaa ttataaggca 300
gtgatttccc ttagggccag gacttggggc tccagctcat ctgttccttc tggggccatt 360
catggcagggt tctgggctca aagctgaact ggggagagaa gagatacaga gctaccatgt 420
gactttacct gattgccctc agtttggggg tgcttattgg gaaagagaga gacaaagagt 480
tacttgttac gggaaatatg aaaagcatgg ccaggatgca tagaggagat tctagcaggg 540
gacaggattg gctcagatga cccctgaggg ctcttccagt cttgaaatgc attccatgat 600
attaggaagt cgggggtggg tgggtgggtg gggctagtgt ggtttgaatt taggggccga 660
tgagcttggg tacgtgagca ggggtgttaag ttaggggtctg cctgtatttc tgggtccctt 720
ggaaatgtcc ctttcttcag tgtcagacct cagtcccagt gtccatattc tgcccagaaa 780
agtagacatt atcctgcccc atcccttccc cagtgcactc tgacctagct agtgccctgt 840
gcccagtgac ctggggggagc ctggctgcag gccctcactg gttccctaaa ccttgggtggc 900
tgtgattcag gtccccaggg gggactcagg gaggaatatg gctgagttct gtagtttcca 960
gagttggctg gtagagcctt cttagaggtt agaattattg cttcaggatc agctgggggt 1020
atggaatttg ctgaggatca aacgtatgta ggtgaaagga taccaggatg ttgctaaagg 1080
tgagggacag tttgggtttg ggacttacca ggggtgatgt agatctggaa cccccaagt 1140
aggctggagg gagttaaggc cagtatggaa gatagggttg ggaacagggt ctttggaat 1200
aaagagtgac cttagagggc tccttggggc tcaggaatgc tcctgctgct gtgaagatga 1260
gaagggtgct ttactcagtt aatgatgagt gactatattt accaaagccc ctacctgct 1320
ctgggtccct tgtagcacag gagactgggg ctaaggggcc ctcccaggga agggacacca 1380
tcaggcctct ggctgaggca gtagcataga ggatccattt ctacctgcat ttcccagagg 1440
actagcagga ggcagccttg agaaaccggc agttcccaag ccagcgcttg gctgttctct 1500
cattgtcact gccctctccc caacctctcc tctaaccac tagagattgc ctgtgtcctg 1560
cctcttgctt cttgtagaat gcagctctgg ccctcaataa atgcttcctg cattcatctg 1620
caaaaaaaaaa

```

## (2) INFORMATION ON SEQ ID NO. 45:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 169 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

(vii) OTHER ORIGIN:

(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 45:

```
tcttttgctt ttagcttttt atttttgtat taacaggagt cttattacac ataggtctga 60
taaaactggt ttatgatctt cagtctgatt ccagtgctgc ataactagat aacgtatgaa 120
ggaaaaacga cgacgaacaa aaaagtaagt gcttggaaga cttagttga
```

(2) INFORMATION ON SEQ ID NO. 46:

(i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 769 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

(vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 46:

```
tgcaggtcat atttactatc ggcaataaaa ggaagcaaag cagtattaag cagcgggtgga 60
atttgtcgct ttcacttttt ataaagtgtc acataaaaatg tcatatttcc aaatttataaa 120
acataactcc agttcttacc atgagaacag catggtgatc acgaaggatc ttcttgaaaa 180
aaacaaaaac aaaaacaaaa aacaatgatc tcttctgggt atcacatcaa atgagataca 240
aaggtgtact aggcaatctt agagatctgg caacttattt tatatataag gcatctgtga 300
ccaagagacg ttatgaatta aatgtacaaa tgtattatgt ataaatgtat taaatgcaag 360
cttcatataa tgacaccaat gtctctaagt tgctcagaga tcttgactgg ctgtggccct 420
ggccagctcc tttcctgata gtctgattct gccttcatat ataggcagct cctgatcatc 480
catgccagtg aatgagaaaa caagcatgga atatataaac tttaacatta aaaaatgttt 540
tattttgtaa taaaatcaaa tttcccattg aaaccttcaa aaactttgca gaatgaggtt 600
ttgatatatg tgtacaagta gtaccttctt agtgcaagaa aacatcatta tttctgtctg 660
cctgcctttt tgttttttaa aatgaagact atcattgaaa caagtttgtc ttcagtatca 720
ggacatgttg acggagagga aaggtaggaa agggttaggg atagaagcc
```

## (2) INFORMATION ON SEQ ID NO. 47:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 2529 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 47:

```

tttagttcat agtaatgtaa aaccatttgt ttaattctaa atcaaatac tttcacaaca 60
gtgaaaatta gtgactggtt aagggtgtgcc actgtacata tcatcatttt ctgactgggg 120
tcaggacctg gtcctagtcc acaagggtgg caggaggagg gtggaggcta agaacacaga 180
aaacacacaa aagaaaggaa agctgccttg gcagaaggat gaggtggtga gcttgccgag 240
ggatggtggg aagggggctc cctgttgggg ccgagccagg agtcccaagt cagctctcct 300
gccttactta gtccttgcca gagggtagat ggggacctac gaggttcaaa atcaaattggc 360
atttggccag cctggcttta ctaacagggt cccagagtgc ctctgttggc tgagctctcc 420
tggggtcact ccatttcatt gaagagtcca aatgattcat tttcctaccc acaacttttc 480
attattcttc tggaaaccca tttctgttga gtccatctga cttaaagtcct ctctccctcc 540
actagttagg gccactgcac tgaggggggt cccaccaatt ctctctagag aagagacact 600
ccagaggccc ctgcaacttt gcggtatttc agaagggtgat aaaaagagca ctcttgagtg 660
ggtgcccagg aatgttttaa atctatcagg cactactata agctggtggt ttcttcctac 720
caagtggatt cggcatatga accacctact caatacttta tattttgtct gtttaaacac 780
tgaactctgg tgttgacagg tacaaggagg aagagatggg gactgtgaag aggggagggc 840
ttccctcatc ttctcaaga tctttgtttc cataaactat gcagtcataa ttgagaaaaa 900
gcaatagatg gggcttccta ccatttggtg gttattgctg gggtagcca ggagcagtg 960
ggatggcaaa gtaggagaga ggcccagagg aaagcccatc tccctccagc tttgggggtc 1020
ccagaaagag gctggatttc tgggatgaag cctagaaggc agagcaagaa ctgttccacc 1080
aggtgaacag tcctacctgc ttggtaccat agtccctcaa taagattcag aggaagaagc 1140
ttatgaaact gaaaatcaaa tcaagggtatt gggaagaata atttcccctc gattccacag 1200
gaggggaagc cacacaatat cattgtgctg gggctcccca aggccctgcc acctggcttt 1260
acaaatcatc aggggttgcc tgcttggcag tcacatgctt ccctggtttt agcacacata 1320
caaggagttt tcagggaact ctatcaagcc ataccaaaat cagggtcaca tgtgggtttc 1380
ccctttcctt gcctcttcat aaaagacaac ttggcttctg aggatggtgg tcttttgcac 1440
gcagttgggc tgacctgaca aagccccagc tttcctgtgg caggttctgg gagaggatgc 1500
attcaagctt ctgcagccta ggggacaggg ctgcttgctc agttattact gcctcggagc 1560

```

```

tccaaatccc accaaagtcc tgactccagg tctttcctaa tgcacagtag tcagtctcag 1620
cttcggcagt attctcggct gtatgttctc tggcagagag aggcagatga acatagtttt 1680
agggagaaaag ctgatgggaa acctgtgagt taagccacat gtctcaccag gaataattta 1740
tgccaggaaa ccaggaagtc attcaagttg ttctctgagg ccaaagacac tgagcacagc 1800
ccagagccaa taaaagatct ttgagtcctc ggtgaattca cgaagtgacc ccagctttag 1860
ctactgcaat tatgattttt atgggacagc aatttcttgc atctctacag aggaagaaga 1920
gggggagtgg gaggggaagg aaagagaaca gagcggcact gggatttgaa aggggaacct 1980
ctctatctga ggagccccc aaggcttcag aagcaactta ccaaggggta tttaaagaca 2040
tgaaaatttc cagaaatacc atttggtgca tccctttgtt tctgtaatat taaactcagg 2100
tgaaattata ctctgacagt ttctctcttt ctgcctcttc cctctgcaga gtcaggacct 2160
gcagaactgg ctgaaacaag atttcatggt gtcacccatg agagatgact caatgccaag 2220
gcctgaagtt atagagtgtt tacagcgggt gcgatattca ggggtcatcg ccaactggtc 2280
tcgagttcca aagctctgat gaagaaacaa gactccttga tgtgttactg atcccactga 2340
ttccaggagt caagattagc caggaagcca aacaccagga gttggggtgg cacgtcacca 2400
gtccagagcc ctgccacgga tgtacgcagg agcccagcat taggcaatca ggagccagaa 2460
catgatcacc agggccacaa ataggaagag gcgtgacagg aactgctcgt ccacatacct 2520
ggggtgtcc

```

(2) INFORMATION ON SEQ ID NO. 48:

(i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 1553 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

(vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 48:

```

tttttttttt tttttgattt ctgggacaat taagctttat ttttcatata tatatatatt 60
ttcatatata tatatacata catatataaa ggaaacaatt tgcaaattta cacacctgac 120
aaaaccatat atacacacat atgtatgcat acacacagac agacacacac acccgaagct 180
ctagccaggc ccgttttcca tccctaagta ccattctctc atttgggccc ttctaggggt 240
ggggccctga gcttggtttg tagaagtttg gtgctaatat aaccatagct ttaatcccca 300
tgaaggacag tgtagacctc atctttgtct gctccccgct gcctttcagt ttacgtgat 360
ccatcaagag ggctatggga gccaaagtga caggggggat tgaggctaatt tcacctgaac 420
tcgaaaacag cgcccagctt cctcaccgca ggcacgcgtc ttttcttttt ttttctcga 480
gacggagtct cgctgtgttg ccagggttg agtgcaagg caggtctcgc gctcactgca 540
agctccacct cctggattca taccattctc ctgcttcagc cttccgagta gctgggacta 600
taggtgccaa ccactacgcc tagctaattt tttttgtat ttttagtaga gacaggggtt 660
caccgtgtta gccaggatgg tctcgtcctg actttgtgat ccgcccgcct cggcctccca 720
aagtgtctggg attacaggcg tgagccacca cacctggccc cggcacgtat cttttaagga 780
atgacaccag ttcctggcct ctgaccaaag aaaaaatgtc acaggagact ttgaagaggc 840
agacaggagg gtggtggcag caacactgca gctgcttctg gatgctgctg ggggtgctctc 900
cggagcgggt gtgaacagcg cacttcaaca tgagcaggcg cctggctccg gtgtgtcctc 960
acttcagtgg tgacactgga tgggtggaagc cagcctttgg ggcaggaaac cagctcagag 1020
aggctaccca gctcagctgc tggcaggagc caggtattta cagccataat gtgtgtaaag 1080
aaaaaacacg ttctgcaaga aactctccta ccgctcggg agactggggc tccttgcttg 1140
ggatgagctt cactcaacgt ggagatggtg gtggactggt ccctgaaaag cgggccttgc 1200
agggccaaag gaggtcctca ggtcctaac ccagtgggcc tctgaaaggg ggtgtgcagg 1260
cgaggggagc aggaggcttc tctctagtc ctttgagggc tttggctgag agaagagtga 1320
gcagggagct gggaatggtc caggcaggga agggagctga agtgattcgg ggctaattgcc 1380
tcagatcgat gtatttctct ccctggtctc ccggagccct cttgtcaccg ctgctgccct 1440
gcaggaggcc catctcttct gggagcttat ctgacttaac ttcaactaca agttcgctct 1500
tacgagaccg ggggtagcgt gatctcctgc ttccctgagc gcctgcacgg  cag

```

## (2) INFORMATION ON SEQ ID NO. 49:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 921 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library



## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 49:

```

ctgtggtccc agctactcag gaggetgagg cgggaggatt gcttgagccc aggagttgga 60
tggtgcagtg agccaagatc gcaccattgc cctccactct gggccacgga gcaataccct 120
gtctcagaaa acaaaacaaca aaaagcagaa acgctgaagg ggtcggttta cgggaaaacc 180
gcctgtcaga acacttggct actcctaccc cagatcagtg gacctgggaa tgagggttgg 240
tcccgggagg cttttctcca agctgttgcc accagacccg ccatgggaac cctggccaca 300
gaagccctccc ggggagtgag ccagagcctg gaccgctgtg ctgatgtgtc tggggtggag 360
ggaggggtggg gagtgtgcaa ggggtgtgtg gtgcccgggg ggtgttcatt ggcaagcatg 420
tgctgtcctg tgtgtgtgctg tgcccctccc ctgcagccgt cgggtggtatc tccctccagc 480
cccttcgcca ccttctgagc attgtctgtc cacgtgagac tgcccagaga cagcagagct 540
ccacgtgggtt ttaaggggag acctttccct ggacctgggg gtctcgccgt atctcatgac 600
caggtgctaa atgacccgac atgcatcacc tgcctttcga tgaccaacct ccctgtcccc 660
gtcccgtcga cctgcccccg tggcgtctca cgggtgatgc tgctcctgac attggtgttc 720
actgtagcaa actacattct ggatgggaat tttcatgtac atgtgtggca tgtggaaaat 780
ttcaataaaa atggacttga tttagaaagc caaaaagctg tgtggtcctt ccagcacgga 840
tactttgacc tcttgcttac aacccttcc ttgggtccga ggctggtagc tttgttctact 900
tcagatggtt gggggcggtt g

```

## (2) INFORMATION ON SEQ ID NO. 50:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 338 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 50:

```

atgatctatc tagatgccct accgtaaaat caaaacacaa aaccctactg actcattccc 60
tcccttccag atattacccc atttctctac ttccatttgt agccaaactt tccaaaaatt 120
catgttctgt cttcatttcc tcatgttcaa cccaccctgt cttagctacc acccctcagt 180
aacgacctag cctgggtaga aacaaatgtc agcatgatac cataactcaat gatccttcgt 240
cactgtttgtc attgtcatca ttccatggcc ttactttccc tctcagcgcc atttgctaca 300
gtaagaaact ttctttcttg aattcttggg tctcttgg

```

## (2) INFORMATION ON SEQ ID NO. 51:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 1191 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 51:

```

ctagcaagca ggtaaagcag ctttgtacaa acacacacag accaacacat ccgggggatgg 60
ctgtgtgttg ctagagcaga ggctgattaa acactcagtg tgttggtctt ctgtgccact 120
cctggaaaat aatgaattgg gtaaggaaca gttaataaga aaatgtgcct tgctaactgt 180
gcacattaca acaaagagct ggcagctcct gaaggaaaag ggcttgtgcc gctgccgttc 240
aaacttgtca gtcaactcat gccagcagcc tcagcgtctg cctccccagc acaccctcat 300
tacatgtgtc tgtctggcct gatctgtgca tctgctcgga gacgctcctg acaagtcggg 360
aatttctcta tttctccact ggtgcaaaga gcggatttct ccctgcttct cttctgtcac 420
cccgcctcct ctccccagc aggcctcctt atttatggta gctttggact tgcttccccg 480
tctgactgtc cttgacttct agaatggaag aagctgagct ggtgaaggga agactccagg 540
ccatcacaga taaaagaaaa atacaggaag aaatctcaca gaagcgtctg aaaatagagg 600
aagacaaact aaagcaccag catttgaaga aaaaggcctt gagggagaaa tggcttctag 660
atggaatcag cagcggaaaa gaacaggaag agatgaagaa gcaaaatcaa caagaccagc 720
accagatcca ggttctagaa caaagtatcc tcaggcttga gaaagagatc caagatcttg 780
aaaaagctga actgcaaata tcaacgaagg aagaggccat tttaaagaaa cttaaagtcaa 840
ttgagcggac aacagaagac attataagat ctgtgaaagt ggaaagagaa gaaagagcag 900
aagagtcaat tgaggacatc tatgctaata tccctgacct tccaaagtcc tacatacctt 960
ctaggttaag gaaggagata aatgaagaaa aagaagatga tgaacaaaat aggaaagctt 1020
tatatgccat ggaaattaaa gttgaaaaag acttgaagac tggagaaagt acagttctgt 1080
cttccaatac ctctggccat cagatgactt taaaagggtac aggagtaaaa gttaaagatg 1140
atgggcaaaa gtccagtgtg ttccagtaaa tgctaatac aagttggagg t

```

## (2) INFORMATION ON SEQ ID NO. 52:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 1200 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:

(A) ORGANISM: HUMAN

(C) ORGAN:

(vii) OTHER ORIGIN:

(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 52:

```

aacagggact ctcaactctat caaccccagg ctggagtcog gtgcgcccac cctggctccc 60
tgcaacctcc gcctcccagg ctcaagcaac tctcctgcct cagtcgctct agtagctggg 120
actacaggca cacaccacca tgcccagcca atttttgcat tttttgtaga gacagggttt 180
cgccttctgt ccaggccggc atcatatact ttaaatacatg ccagatgac ttaataacct 240
aatacaatat atcaggttgg tttaaaaata attgcttttt tattattttt gcatttttgc 300
accaacctta atgctatgta aatagttggt atactgttg ttaacaacag tatgacaatt 360
ttggcttttt ctttgtagta ttttgtagtt ttttttttta ttgtgtggtc tttttttttt 420
ttctcagtggt tttcaattcc tccttggttg aatccatgga tgcaaaaccc acagatatga 480
agggctgggt atatatgcat tgatgattgt cctattatat tagttataaa gtgtcattta 540
atatgtagtg aaagttagtg tacagtggaa agagttagtg aaaacataaa catttggacc 600
tttcaagaaa ggtagcttgg tgaagttttt caccttcaaa ctatgtccca gtcagggtc 660
tgctactaat tagctataat ctttgacaaa attacatcac ctttgagtct cagttgcctc 720
acctgtaaaa tgaaagaact ggatactctc taaggtcact tccagccctg tcattctata 780

actctgttat gctgaggaag aaattcacat tgtgttaact gtatgagtca aactgaaaat 840
gattattaaa gtgggaaaaa gccaatgct tctcttagaa agctcaacta aatttgagaa 900
gaataatctt ttcaattttt taagaattta aatattttta agggtttgac ctattttatt 960
agagatgggg tctcactctg tcacccagac tggagtacag tggcacaatc atagctcact 1020
gctgcctcaa attcatgggc tcaagtgatc ctctgcctc tgccctccaga gtagctgcga 1080
ctatgggcat gtgccaccac gcctggctaa catttgtatt gacctattta tttattgtga 1140
tttatatctt tttttttttt tctttttttt tttttttaca aatcagaaat acctattttg 1200

```

(2) INFORMATION ON SEQ ID NO. 53:

(i) SEQUENCE CHARACTERISTIC:

(A) LENGTH: 989 base pairs

(B) TYPE: Nucleic acid

(C) STRAND: individual

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:

(A) ORGANISM: HUMAN  
(C) ORGAN:

(vii) OTHER ORIGIN:  
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 53:

```

aagccaccac tcaaaacttc ctatacatTTt tcacagcaga gacaagtgaA cATTtattttt 60
tatgcctttc ttcctatgtg tattttcaagt ctttttcaaa acaaggcccc aggactctcc 120
gattcaatta gtccttgggc tggtcgactg tgcaggagtc cagggagcct ctacaaatgc 180
agagtgactc tttaccaaca taaaccctag atacatgcaa aaagcaggac ccttcctcca 240
ggaatgtgcc atttcagatg cacagcaccC atgcagaaaa gctggaattt tccttggaac 300
cgactgtgat agagggtgctt acatgaacat tgctactgtc tttctttttt tttgagacag 360
gtttcgcttg tgcccaggct gagtgcAatg cgtgatctca ctactgcaa ttccacctcc 420
aggttcaagc attctcctgc tcagcctcct agtagctggg ttacaggcac tgccaccatg 480
ccggctaatt ttgtattttt gtagagatgg atttctccat ttggtcaggc ggtctcgaac 540
cccaacctca gtgatctgcc acctcagcct cctaagtgtt ggattacagg atgagccacc 600
cgaccggcca ctactgtctt tctttgaccc ttccagtttc gaagataaag aggaaataat 660
ttctctgaag tacttgataa aattttccaaa caaaacacat gtccacttca ctgataaaaa 720
atttaccgca gttttggcacc taagagtatg acaacagcaa taaaaagtaa tttcaaagag 780
ttaagatttc ttcagcaaaa tagatgattc acatcttcaa gtcctttttg aaatcagtta 840
ttaatattat tctttcctca tttccatctg aatgactgca gcaatagttt tttttttttt 900
tttttttttt ttgcgagatg gaatctcgct ctgtcgccca gcgggagtgC actggcgcaa 960
gcccggtca ccgcaatctc tgccaccg

```

(2) INFORMATION ON SEQ ID NO. 54:

(i) SEQUENCE CHARACTERISTIC:  
(A) LENGTH: 250 base pairs  
(B) TYPE: Nucleic acid  
(C) STRAND: individual  
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual  
ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:  
(A) ORGANISM: HUMAN  
(C) ORGAN:

(vii) OTHER ORIGIN:  
(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 54:

```
catttcccca ttggtcctga tgttgaagat ttagttaaag aggctgtaag tcaggttcga 60
gcagaggcta ctacaagaag tagggaatca agtccctcac atgggctatt aaaactaggt 120
agtgggtggag tagtgaaaaa gaaatctgag caacttcata acgtaactgc ctttcaggga 180
aaagggcatt ctttaggaac tgcattctggt aaccacacacc ttgatccaag agctagggaa 240
acttcagttg
```

(2) INFORMATION ON SEQ ID NO. 55:

(i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 2270 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual  
ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

(vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

## (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 55:

```

gcgccccga gcagcgccg cgcctccgc gccttctccg ccgggacctc gagcgaaaga 60
ggccccgcg cgcgccagcc ctgcctccc tgccacccg gcacaccgcg ccgccacccc 120
gaccccgctg cgcacggcct gtccgctgca caccagcttg ttggcgtctt cgtcgccgcg 180
ctcgccccg gctactcctg cgcgccacaa tgagctcccg catcgccagg gcgctcgctt 240
tagtcgtcac ccttctccac ttgaccaggc tggcgctctc cactgcccc gctgcctgcc 300
actgccccct ggaggcgccc aagtgcgcgc cgggagtcgg gctggtccgg gacggctgcg 360
gctgctgtaa ggtctgcgcc aagcagctca acgaggactg cagcaaaacg cagccctgcg 420
accacaccaa ggggctggaa tgcaacttcg gcgccaagtc caccgctctg aaggggatct 480
gcagagctca gtcagagggc agaccctgtg aatataactc cagaatctac caaacgggg 540
aaagtttcca gcccaactgt aaacatcagt gcacatgtat tgatggcgcc gtgggctgca 600
ttcctctgtg tccccaagaa ctatctctcc ccaacttggg ctgtcccaac cctcggtgg 660
tcaaagttag cgggcagtgc tgcgaggagt gggctctgtg cgaggatagt atcaaggacc 720
ccatggagga ccaggacggc ctcttgggca aggagctggg attcgatgcc tccgaggtgg 780
agttgacgag aaacaatgaa ttgattgcag ttggaaaagg cagctcactg aagcggctcc 840
ctgtttttgg aatggagcct cgcactctat acaaccctt acaaggccag aaatgtattg 900
ttcaaacaac ttcatggtcc cagtgtcaca agacctgtgg aactggtatc tccacacgag 960
ttaccaatga caaccctgag tgccgccttg tgaaagaaac ccggatttgt gaggtgcggc 1020
cttgtggaca gccagtgtac agcagcctga aaaagggcaa gaaatgcagc aagaccaaga 1080
aatccccga accagtcagg tttacttacg ctggatgttt gagtgtgaag aaataccggc 1140
ccaagtactg cgtttcctgc gtggacggcc gatgctgcac gcccagctg accaggactg 1200
tgaagatgcg gttccgctgc gaagatgggg agacattttc caagaacgct atgatgatcc 1260
agtctgcaa atgcaactac aactgcccgc atgccaatga agcagcgttt cccttctaca 1320
ggctgttcaa tgacattcac aaatttaggg actaaatgct acctgggttt ccagggcaca 1380
cctagacaaa caaggagaa gagtgtcaga atcagaatca tggagaaaat gggcggggt 1440
ggtgtgggtg atgggactca ttgtagaaag gaagccttgc tcattcttga ggagcattaa 1500
ggtatttcga aactgccaag ggtgctgggt cggatggaca ctaatgcagc cagcattgga 1560
gaatactttg cttcatagta ttggagcaca tgttactgct tcattttgga gcttgtggag 1620
ttgatgactt tctgttttct gtttgtaaat tatttgctaa gcataatttc tctaggcttt 1680
tttcctttg gggttctaca gtcgtaaaag agataataag attagtgtga cagtttaaaag 1740
cttttattcg tcctttgaca aaagttaaag ggagggcatt ccattcccttc ctgaaggggg 1800
acactccatg agtgtctgtg agaggcagct atctgcactc taaactgcaa acagaaatca 1860
ggtgttttaa gactgaatgt tttattttatc aaaatgtagc ttttggggag ggaggggaaa 1920
tgtaatactg gaataatttg taaatgattt taattttata ttcagtgaag agattttatt 1980
tatggaatta accatttaat aaagaaatat ttacctata tctgagtgtg tgccattcgg 2040
tatttttaga ggtgctccaa agtcattagg aacaacctag ctacgtact caattattca 2100
aacaggactt attgggatac agcagtgaat taagctatta aaataagata atgattgctt 2160
ttataccttc agtagagaaa agtctttgca tataaagtaa tgtttaaaaa acatgtattg 2220
aacacgacat tgtatgaagc acaataaaga ttctgaagct aaaaaaaaaa

```

## (2) INFORMATION ON SEQ ID NO. 56:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 1636 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:

(A) ORGANISM: HUMAN

(C) ORGAN:

(vii) OTHER ORIGIN:

(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 56:

```

cttgaatgaa gctgacacca agaaccgcg gaagagcttg ggcccaaagc aggaaaggga 60
agcgctcgag ttggaaagga accgctgctg ctggccgaac tcaagcccg ggcggcccccac 120
cagtttgatt ggaagtccag ctgtgaaacc tggagcgctg ccttctcccc agatggctcc 180
tggtttgctt ggtctcaagg acactgcac gtcaaaactga tcccctggcc gttggaggag 240
cagttcatcc cttaaagggt tgaagccaaa agccgaagta gcaaaaatga gacgaaaggg 300
cggggcagcc caaaagagaa gacgctggac tgtggtcaga ttgtctgggg gctggccttc 360
agcccggtggc cttccccacc cagcaggaag ctctgggcac gccaccacc ccaagtggcc 420
gatgtctctt gcctggttct tgctacggga ctcaacgatg ggcagatcaa gatctgggag 480
gtgcagacag ggctcctgct tttgaatctt tccggccacc aagatgtcgt gagagatctg 540
agcttcacac ccagtggcag tttgattttg gtctccgctg cacgggataa gactcttcgc 600
atctgggacc tgaataaaca cggtaaacag attcaagtgt tatcggggcca cctgcagtgg 660
gtttactgct gttccatctc ccagactgc agcatgctgt gctctgcagc tggagagaag 720
tcgggtctttc tatggagcat gaggctctac acgttaattc ggaagctaga gggccatcaa 780
agcagtgttg tctcttgta cttctcccc gactctgcc tgcttgtcac ggcttcttac 840
gataccaatg tgattatgtg ggaccctac accggcgaaa ggctgaggtc actccaccac 900
accaggttg accccgccat ggatgacagt gacgtccaca ttagctcact gagatctgtg 960
tgcttctctc cagaaggctt gtaccttgcc acggtggcag atgacagact cctcaggatc 1020
tgggccctgg aactgaaaac tccattgca tttgtctcta tgaccaatgg gctttgctgc 1080
acattttttc cacatgggtg agtcattgcc acagggacaa gagatggcca cgtccagttc 1140
tggacagctc ctagggctct gtctcactg aagcacttat gccggaaagc ccttcgaagt 1200
ttcctaacaa cttaccaagt cctagcactg ccaatcccc agaaaatgaa agagttcctc 1260
acatacagga ctttttaagc aacaccacat cttgtgcttc tttgtagcag ggtaaatcgt 1320

cctgtcaaa gggagttgctg gaataatggg ccaaacatct ggtcttgcat tgaaatagca 1380
tttctttggg attgtgaata gaatgtagca aaaccagatt ccagtgtaca taaaagaatt 1440
tttttgtctt taaatagata caaatgtcta tcaactttaa tcaagttgta acttatattg 1500
aagacaattt gatacataat aaaaaattat gacaatgtcc tgggaaaaaa aaaatgtaga 1560
aagatgggtg aggggtgggat ggatgaggag cgtggtgacg ggggcctgca gcgggttggg 1620
gacctgtgc tgcgtt

```

## (2) INFORMATION ON SEQ ID NO. 57:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 460 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

## (vi) ORIGIN:

- (A) ORGANISM: HUMAN
- (C) ORGAN:

## (vii) OTHER ORIGIN:

- (A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 57:

ccatgtgtgt atgagagaga gagagattgg gagggagagg gagctcacta gcgcatatgt 60

gcctccaggg ggctgcagat gtgtctgagg gtgagcctgg tgaaagagaa gacaaaagaa 120  
 tggaatgagc taaagcagcc gcctgggggtg ggaggccgag cccatttgta tgcagcaggg 180  
 ggaggagcc cagcaaggga gcctccattc ccaggactct ggaggagct gagaccatcc 240  
 atgcccgcag agccctccct cacactccat cctgtccagc cctaattgtg caggtgggga 300  
 aactgaggct gggaagtcac atagcaagtg actggcagag ctgggactgg aacccaacca 360  
 gcctcctaga ccacggttct tcccatcaat ggaatgctag agactccagc caggtgggta 420  
 ccgagctcga attcgtaatc atggtcatag ctgtttcctg

## (2) INFORMATION ON SEQ ID NO. 58:

## (i) SEQUENCE CHARACTERISTIC:

- (A) LENGTH: 1049 base pairs
- (B) TYPE: Nucleic acid
- (C) STRAND: individual
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing



(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:

(A) ORGANISM: HUMAN

(C) ORGAN:

(vii) OTHER ORIGIN:

(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 58:

```

atctgatcaa gaatacctgc cctgggcact ctgcggatgt ttctgtccac ttgttcacat 60
tgaggaccaa gatatccttt tttacagagg cacttggtcg gtctaacaca gacacctcca 120
tgacgacatg ctggctcaca ttttgcagtt ctgcagaagt cccctccca gcctggacta 180
cagcagcact ttcccgtggg ggtgcagtag ccgtttcgac agagcctgga gcactctgaa 240
gtcagtgtct gtgcagggtg taccgtggct ctgcattcct caggcattaa aggtcttttg 300
ggatctacaa ttttgtagag ttttccattg tgagtctggg tcatactttt actgcttgat 360
aaaatgtaaa cttcacctag ttcactttct ccaaatacca agatgtgacc ggaaaagtag 420
cctctacagg acccactagt gccgacacag agtgggtttt cttgccactg ctttgtcaca 480
ggactttgct ggagagttag gaaattccca ttacgatctc caaacacgta gcttccatac 540
aatctttctg actggcagcc ccggtataca aatccaccaa ccaaaggacc attactgaat 600
ggcttgaatt ctaaaagtga tggctcactt tcataatctt tcccctttat tatctgtaga 660
attctggctg atgatctgtt ttttccattg gagtctgaac acagtatcgt taaattgatg 720
tttatatcag tgggatgtct atccacagca catctgcctg gatcgtggag cccatgagca 780
aacacttcgg ggggctggtt ggtgctgttg aagtgtgggt tgctccttgg tatggaataa 840
ggcacgttgc acatgtctgt gtccacatcc agccgtagca ctgagcctgt gaaatcactt 900
aaccocatca tttcttccat atcatccagt gtaatcatcc catcaccaag aatgatgtac 960
aaaaaccgtg cagggccaaa gagcagttgc cctcccagat gctttctgtg gagttctgca 1020
acttcaagaa agactctggc tgttctcaa

```

(2) INFORMATION ON SEQ ID NO. 59:

(i) SEQUENCE CHARACTERISTIC:

(A) LENGTH: 747 base pairs

(B) TYPE: Nucleic acid

(C) STRAND: individual

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: Partial cDNAs produced from individual ESTs by assembling and editing

(iii) HYPOTHETICAL: NO

(iii) ANTI-SENSE: NO

(vi) ORIGIN:

(A) ORGANISM: HUMAN

(C) ORGAN:

(vii) OTHER ORIGIN:

(A) LIBRARY: cDNA library

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 59:

```

tttttcaaat cacatatggc ttctttgacc ccatcaaata actttattca cacaaacgtc 60
ccttaattta caaagcctca gtcattcata cacattaggg gatccacagt gttcaaggaa 120
cttaaatata atgtatcata ccaacccaag taaaccaagt acaaaaaata ttcataataa 180
gttggttcaca cgtaggtcct agattaccag cttctgtgca aaaaaaggaa atgaagaaaa 240
atagatttat taactagtat tggaaactaa ctttgtgcct ggcttaaaac ctccctcacg 300
ctcgtctgtc ccacacaaat gtttaagaag tcactgcaat gtactccccg gctctgatga 360
aaagaagccc ctggcacaaa agattccagt gccctgaag aggctccctt cctcctgtgg 420
gctctcctag aaaaccagcg ggacggcctc cctgctgata ccgtctataa ccttaggggg 480
ccctcgggca ggcaacggca gtggactcat ctcggtgatg gctgtagatg ctaacactgg 540
ccaattcaat gccacaccta ctggttacct tttagaggga tttctccaga cagaagcccc 600
ttgaagccta ggtagggcag gatcagagat acaccctgtt ttgtctcgaa gggctccaca 660
gccagtagcg acatgcttgc agaagtagta tctctggact tctgcctcca gtcgaccggc 720
cgcgaaatta gtagtaatat cggccgc

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